Biological Survey of Pacific Hake, Walleye Pollock and Spiny Dogfish in Selected Inshore Areas and in the Open Waters of the Strait of Georgia, *R/V G.B. Reed*, February 7-28 and April 18-24,1983

W. Shaw, G. A. McFarlane, I. Barber, K. Rutherford,
A. Cass, M. Saunders, R. Scarsbrook and M. Smith

Department of Fisheries and Oceans
Fisheries Research Branch
Pacific Biological Station
Nanaimo, British Columbia V9R 5K6

January 1985

Canadian Data Report of Fisheries and Aquatic Sciences No. 500

85-4248/

Canadian Data Report of Fisheries and Aquatic Sciences

These reports provide a medium for filing and archiving data compilations where little or no analysis is included. Such compilations commonly will have been prepared in support of other journal publications or reports. The subject matter of Data Reports reflects the broad interests and policies of the Department of Fisheries and Oceans, namely, fisheries management, technology and development, ocean sciences, and aquatic environments relevant to Canada.

Numbers 1-25 in this series were issued as Fisheries and Marine Service Data Records. Numbers 26-160 were issued as Department of Fisheries and the Environment, Fisheries and Marine Service Data Reports. The current series name was changed with report number 161.

Data Reports are not intended for general distribution and the contents must not be referred to in other publications without prior written clearance from the issuing establishment. The correct citation appears above the abstract of each report.

Rapport statistique canadien des sciences halieutiques et aquatiques

Ces rapports servent de base à la compilation des données de classement et d'archives pour lesquelles il y a peu ou point d'analyse. Cette compilation aura d'ordinaire été préparée pour appuyer d'autres publications ou rapports. Les sujets des Rapports statistiques reflètent la vaste gamme des intérêts et politiques du Ministère des Pêches et des Océans, notamment gestion des pêches, techniques et développement, sciences océaniques et environnements aquatiques, au Canada.

Les numéros 1 à 25 de cette série ont été publiés à titre de Records statistiques, Service des pêches et de la mer. Les numéros 26-160 ont été publiés à titre de Rapports statistiques du Service des pêches et de la mer, Ministère des Pêches et de l'Environnement. Le nom de la série a été modifié à partir du numéro 161.

Les Rapports statistiques ne sont pas préparés pour une vaste distribution et leur contenu ne doit pas être mentionné dans une publication sans autorisation écrite préalable de l'établissement auteur. Le titre exact paraît au haut du résumé de chaque rapport.

Canadian Data Report of
Fisheries and Aquatic Sciences No. 500

January 1985

BIOLOGICAL SURVEY OF PACIFIC HAKE, WALLEYE POLLOCK AND SPINY DOGFISH IN SELECTED INSHORE AREAS AND IN THE OPEN WATERS OF THE STRAIT OF GEORGIA, *R/V G.B. REED*, FEBRUARY 7-28 AND APRIL 18-24, 1983

by

W. Shaw, G. A. McFarlane, I. Barber, K. Rutherford,
A. Cass, M. Saunders, R. Scarsbrook, and M. Smith

Department of Fisheries and Oceans
Fisheries Research Branch
Pacific Biological Station
Nanaimo, British Columbia V9R 5K6

(c)Minister of Supply and Services Canada 1985

Cat. No.Fs 97-13/500E ISSN 0706-6465

Correct citation for this publication:

Shaw, W., G. A. McFarlane, I. Barber, K. Rutherford, A. Cass, M. Saunders, R. Scarsbrook, and M. Smith. 1985. Biological survey of Pacific hake, walleye pollock, and spiny dogfish in selected inshore areas and in the open waters of the Strait of Georgia. R/V G.B. REED, February 7-28 and April 18-24, 1983. Can. Data Rep. Fish. Aquat. Sci. 500: 240 p.

ABSTRACT

Shaw, W., G. A. McFarlane, I. Barber, K. Rutherford, A. Cass, M. Saunders, R. Scarsbrook, and M. Smith. 1985. Biological survey of Pacific hake, walleye pollock, and spiny dogfish in selected inshore areas and in the open waters of the Strait of Georgia. R/V G.B. REED, February 7-28 and April 18-24, 1983. Can. Data Rep. Fish. Aquat. Sci. 500: 240 p.

A total of 39 midwater and 16 bottom trawl sets in February and 20 midwater trawl sets in April were completed in the Strait of Georgia. The most abundant species caught was Pacific hake (Merluccius productus) with lesser amounts of walleye pollock (Theragra chalcogramma) and spiny dogfish (Squalus acanthias).

The majority of tows in the open Strait during February and April were completed in the main concentration layer from 128-329 m (70-180 fath).

Pacific hake in the open Strait ranged in length from 10-89 cm, and age from 1-14 yr. Modal length of adult hake was 40 cm, 3 cm smaller than previously reported. Strong year-classes are represented by age 2+, 4+ and 5+ fish (1981, 1979 and 1978, respectively). Maturity examinations indicated that in February, the majority of the males and females were maturing, and by April spawning was complete as the majority of the fish were spent or recovering. Length at 50% maturity was 32.0 cm and 30.2 cm for males and 34.5 cm and 34.2 cm for females during February and April, respectively. Pacific hake in the inshore areas ranged in length from 11-71 cm. The majority of the inshore hake were found in Stuart Channel in the Gulf Islands area. The length frequency distribution was composed mainly of age 1+ and 3+ fish. The majority of the hake were immature with 4% males and 3% females actively spawning and spent. Length at 50% maturity was 30.7 cm for males and 34.4 cm for females.

Walleye pollock in the open Strait ranged in length from 10-58 cm, and age from 1-8 yr. Pollock in the east Mayne Island area contained more older female pollock than found in the rest of the Strait of Georgia at the time of the surveys. Dominant age-class was age 4+ (1979 year-class). During February, the majority of the males and females were maturing and by April spawning was complete as the majority of the fish were spent and resting. Length at 50% maturity was 32.0 cm and 30.2 cm for males and 34.5 cm and 34.2 cm for females during February and April, respectively. Walleye pollock in the inshore areas ranged from 12-55 cm. The majority of the inshore pollock were found in the Gulf Island areas except in Stuart Channel. No particular association with Pacific hake was observed. Ages 1+ and 2+ fish predominated in the length frequency distribution. The majority of the pollock were immature with no spawning or spent pollock caught. The length at 50% maturity was 30.5 cm for males and 33.0 cm for females.

Spiny dogfish were more abundant in the open Strait than in the inshore areas. Dogfish from the open Strait ranged in length from 26-120 cm with the majority in February (91%) and in April (85%) being ≤60 cm. Juvenile dogfish were more abundant on the Vancouver Island side of the Strait of Georgia. Spiny dogfish in the inshore areas ranged from 26-101 cm of which few adult dogfish (>60 cm) were found in the catches.

Key words: Pacific hake, walleye pollock, spiny dogfish, biology, Strait of Georgia

RÉSUMÉ

Shaw, W., G. A. McFarlane, I. Barber, K. Rutherford, A. Cass, M. Saunders, R. Scarsbrook, and M. Smith. 1985. Biological survey of Pacific hake, walleye pollock, and spiny dogfish in selected inshore areas and in the open waters of the Strait of Georgia. R/V G.B. REED, February 7-28 and April 18-24, 1983. Can. Data Rep. Fish. Aquat. Sci. 500: 240 p.

Dans le détroit de Géorgie, on a effectué 39 traits de chalut mésoplagique et 16 traits de chalut de fond en février et 20 traits de chalut mésopélagique en avril. Le merlu du Pacifique (*Merluccius productus*) était l'espèce la plus abondante, suivi de la morue du Pacifique occidental (*Theragra chalcogramma*) et de l'aiguillat commum (*Squalus acanthias*).

En février et avril, la plupart des traits dans les eaux hauturières du détroit ont été effectués dans la principale couche de concentration, soit entre 128 et 329 m (70-180 brasses).

Dans les eaux hauturières du détroit, la longueur et l'âge du merlu du Pacifique variaient respectivement de 10 à 89 cm et 1 à 14 ans. La longueur modale des adultes s'élevait à 40 cm, soit 3 cm de moins que la valeur signalée antérieurement. Les classes d'âges 2^+, 4^+, et 5^+ (1981, 1979 et 1978 respectivement) sont présentes en abondance. Un examen de l'état de maturité a révélé qu'en février, la plupart des mâles et des femelles étaient en état de maturation; en avril, la fraie était terminée car la majorité des poissons étaient vides ou récupéraient. En février et avril, la longueur à 50% de maturité s'élevait respectivement à 32.0 et 30.2 cm chez les mâles, et à 34.5 et à 34.2 cm chez les femelles. Dans les zones côtières, où la majorité des merlus fréquentaient le chenal Stuart et la région des îles Gulf, leur longueur variait de 11 à 71 cm. La distribution des fréquences des longueurs se composait surtout de poissons d'ages 1^+ et 3^+. La plus grande partie des merlus étaient immatures; 4% des mâles et 3% des femelles frayaient activement ou étaient vides. À 50% de maturité, la longueur était de 30.7 cm chez les mâles et de 34.4 cm chez les femelles.

Dans les eaux hauturières du détroit, la longueur et l'âge de la morue du Pacifique occidental variait respectivement de 10 à 58 cm et de 1 à 8 ans. Au moment des relevés, il y avait plus de vieilles femelles à l'est de l'île Mayne que dans le reste du détroit de Géorgie. Les poissons d'âge 4^+ (1979) constituaient la plus importante classe d'âge. En février, la plupart des mâles et des femelles étaient en état de maturation; la fraie était terminée en avril étant donné que la majorité des poissons étaient vides et au repos. En février et avril, la longueur à un taux de maturité de 50% s'élevait respectivement à 32.0 et à 30.2 chez les mâles et à 34.5 et 34.2

chez les femelles. Dans les zones côtières, où les plus grandes concentrations se trouvaient dans la région des îles Gulf sauf le chenal Stuart, la longueur de la morue variait de 12 à 55 cm. Aucune association particulière avec le merlu du Pacifique n'a été observée. Les poissons d'âge 1^+ et 2^+ dominaient dans les fréquences des longueurs.

La plupart des morues étaient immatures; aucun spécimen reproducteur ou vide n'a été capturé. La longueur à un taux de maturité de 50% s'élevait à 30.5 cm chez les mâles et à 33.0 cm chez les femelles.

L'aiguillat commun était plus abondant dans les eaux hauturières du détroit que dans les zones côtières. Dans la première zone, la longueur variaiat de 26 à 120 cm; en février (91%) et avril (85%), la plupart des poissons mesuraient $\leq$ 60 cm. Les juvéniles étaient plus nombreux dans les eaux baignant l'île Vancouver. Dans les eaux côtières, la longueur des aiguillats allait de 26 à 101 cm; seul un petit nombre d'adultes (> 60 cm) étaient présents dans les prises.

Mots-clés: merlu du Pacifique, morue du Pacifique occidental, aiguillat commun, biologie, détroit de Géorgie

INTRODUCTION

Since 1974 the Groundfish program has been collecting biological data for Pacific hake (Merluccius productus), walleye pollock (Theragra chalcogramma), and spiny dogfish (Squalus acanthias) in the Strait of Georgia. The primary purpose of both the February and April 1983 surveys was to monitor the pre-spawning and post-spawning concentrations of Pacific hake in the Strait of Georgia; and to locate areas containing concentrations of young Pacific hake and walleye pollock among the Gulf Islands between Nanaimo and Saanich Inlet. A secondary purpose was a cooperative study with the Pacific Herring Investigation to collect stomach samples from Pacific hake.

This report presents set information and summarizes the results of the catch composition and biological studies for each cruise.

METHODS

The R/V G.B. REED was used during both survey periods. Tows were completed in the waters of the open Strait using a Diamond 5-B midwater trawl equipped with an Elac model LAZ 17 headrope transducer. The net was equipped with a 4.0 cm (1.6 in) mesh herring codend for all tows. A Maronovich "semi-balloon" shrimp bottom trawl was used for 16 tows in the Gulf Islands area during the February cruise. No liner was used in the bottom trawl as the mesh in the codend measured 3.8 cm (1.5 in).

Set locations were distributed throughout the Strait and were positioned in areas where concentrations of fish were seen on the echogram during trackline surveys. Midwater tows were made to identify the species composition in the various concentration layers. Bottom tows were made in areas of trawlable bottom.

The catch from each set was sorted by species into 55 L (12 gal) galvanized tubs and weighed to the nearest kilogram using a platform balance. Small catches were sampled in their entirety while a subsample was collected from larger catches according to the methods of Westrheim (1967).

Hake and pollock were measured for fork length and sexed. Either the total catch or random samples of tubs filled with hake or pollock were examined for maturity states (Weir et al. 1978; McFarlane et al. 1982b) and stomach contents. Ripe and spent ovaries from hake were collected for fecundity studies. Hake stomachs were collected from selected tows and stored in 10% formalin by personnel from the Herring Investigation. Paired otoliths from hake and left pectoral fins from pollock were collected for age determination. Age determination procedures for otoliths and pectoral fin rays is outlined in Beamish (1979) and (1981), respectively.

All dogfish were sexed, measured for total length[a], and examined for maturity states (Beamish and Smith 1976). Dogfish from selected tows were examined for stomach contents.

Incidental catches of brown cat shark (Apristurus brunneus), English sole (Parophrys vetulus), flathead sole (Hippoglossoides elassodon), rock sole (Lepidopsetta bilineata), and slender sole (Lyopsetta exilis) were sampled for total length. However, chinook salmon (Oncorhynchus tshawytscha), Pacific herring, sablefish (Anoplopoma fimbria), Pacific cod (Gadus macrocephalus) and Pacific tomcod (Microgadus proximus) were measured for fork length. When time permitted, stomach contents, sex and maturity state were recorded.

During the February survey, core samples were collected in the Strait using a benthos corer. These cores will be used to assess the historical abundance and distribution of pelagic fish, primarily hake and pollock, in the Strait of Georgia. Basin-like areas were selected for core sampling as determined from bathymetric chart numbers 15783-A, 15792-A and 15794-A. Prior to each core sample, a "shipek" bottom grab was used to determine if the substrate was amenable to coring. The sediment samples were contained in a plexiglass liner, capped at both ends, labelled, and stored upright in a freezer.

During the April cruise expendable bathythermographs (XBT) were used at preselected stations to record water temperature profiles.

RESULTS AND DISCUSSION

GENERAL SUMMARY

During February 8-27 a total of 39 midwater and 16 bottom tows were completed in the Strait of Georgia. Midwater trawl gear was used in the open Strait area from Mitlenatch Island to Saturna Island with 2 tows inside both Desolation and Howe Sound. Bottom trawl gear was used inside the Gulf Islands from Dodds Narrows to Saanich Inlet (Fig. 1). During April 18-24 a total of 20 midwater tows were completed. The set locations ranged from Mitlenatch Island to the Halibut Bank area (Fig. 2). Detailed records of bridge-log information and species composition of catches by haul for the February and April cruises are contained in Appendix tables 1 and 2, respectively. A list of common and scientific names of the fish caught during both cruises is presented in Appendix table 3.

During February, all but 10 of the midwater tows were completed within the main concentration layer from 128-329 m (70-180 fath). The remaining sets were on specific targets either above or below this layer. Set locations, using bottom trawl gear, were selected in areas of trawlable bottom where concentrations of fish were seen on the echogram.

---

[a] Measured from the tip of the snout to the tip of the upper lobe of the caudal fin when depressed in a line horizontal to the body.

Results from an echogram survey in April (Fig. 3) indicated concentrations of fish in the shallow spotting layer from 60-120 m (33-66 fath) to range in a subjective density estimate (Thompson and McFarlane 1982) from nil, in small localized areas throughout the Strait, to heavy spotting (HSP) off Halibut Bank and west Grant Reef area (Fig. 4). The density of fish in the shallow layer was predominantly light spotting (LSP). Concentrations of fish in the deeper main concentration layer from 160-330 m (88-180 fath) ranged in a subjective density estimate (Thompson and McFarlane 1982) from nil, north of Hornby Island, to very heavy (VH) off Halibut Bank (Fig. 5,6). In the vicinity of Halibut Bank the deeper layer was predominantly heavy (H) with a small localized very heavy (VH) layer. The deeper layer west of Grant Reef consisted of a small localized medium (M) layer. The distribution of both the shallow and deep layer in the Halibut Bank region is similar to Thompson and McFarlane (1982).

During April, all but 7 of the midwater tows were completed at depths within the main concentration layer from 146-324 m (80-180 fath). The remaining sets were on specific targets either above or below this layer. A summary of the density estimates for each set completed in February and April is in the footnotes to Appendix tables 1 and 2.

The most abundant species caught during both surveys was hake, with pollock and dogfish being common but less abundant. Brown cat shark were present in 19 tows during both cruises. The catch rates resulting from the midwater trawl gear are not representative of the abundance of fish during these surveys, because of the inexperience of the crew in fishing and repairing the Diamond 5-B net. However, bottom trawl catches are representative as no problems were experienced. A large catch of hake (5267 kg/hr) was made off Ladysmith Harbour (set 27) from 84-88 m (46-48 fath); pollock (640 kg/hr), were in Satellite Channel (set 23) from 66-77 m (36-42 fath); and dogfish (53 kg/hr), were in Swanson Channel (set 22) from 75-84 m (41-46 fath).

During February a total of 950 hake stomachs were collected and preserved as part of a cooperative study with the Herring Investigation to assess the impact of hake predation on the Pacific herring (Clupea harengus pallasi) stocks in the Strait of Georgia. Also, a total of 20 core samples were collected in basin-like areas throughout the Strait where known midwater concentrations of hake reside (Fig. 7). Set locations for core samples are presented in Table 1. Based on a cursory observation of the "shipek" grabs, the sediment type ranged from gravelly mud near Mitlenatch Island, clay in the central Strait to silty sand in the south central Strait. In Saanich Inlet the sediment was a black ooze smelling of hydrogen sulphide indicating anoxia conditions.

Water temperature profiles were recorded at 10 stations during the April survey (Fig. 2). A summary of the temperature profiles by depth interval is in Table 2. The mean surface temperature in the Strait of Georgia was 11.7°C. The depth interval representing the plankton layer or the shallow layer at the 91 m (50 fath) exhibited a mean temperature of 8.9°C. The 164, 201, and 256 m (90, 110, and 140 fath) depth intervals represent midwater depths above, within, and below the main concentration layer (Fig. 6). The mean temperatures at those respective depths through the main concentration layer increased from 9.0° to 9.2° to 9.3°C. The bottom temperature was the warmest at 9.4°C. The increase in temperature with depth is not unusual for the Strait of Georgia at this time of year (Thomson 1981). The temperature profile is similar to the profile determined by Thompson and McFarlane (1982).

PACIFIC HAKE

A total of 8777 hake in February and 4004 hake in April were sampled. Pacific hake were present in 44 of 55 sets in February and 19 of 20 sets in April. A summary of the biological samples collected during the two cruises is given in Tables 3 and 4.

Open Strait

During February, male hake composed 59% of the total catch and dominated 73% of all sets. This is a reflection of the depth of capture as a majority (91%) of the sets were made deeper than 150 m (82 fath) and males predominated (58%) in those sets. In April males composed 67% of the total catch and dominated 65% of all sets. Again, a majority (74%) of the sets were made deeper than 150 m (82 fath) with males predominating (86%) in those sets. During both cruises, females were more abundant in sets completed in depths shallower than 150 m (82 fath). Segregation by sex during pre-spawning and post spawning with depth has been documented by other workers (Beamish et al. 1978a; Cass et al. 1978, 1980; and McFarlane et al. 1982a and b; 1983).

During both cruises, male hake ranged from 10 to 89 cm and female hake ranged from 9 to 71 cm (Appendix tables 4 and 5). The majority of the fish were adults ranging from 39 to 49 cm with less than 1% of the fish larger than 50 cm. Three modal groups were present in the length frequency distribution in February and April; 11 and 13 cm (age 1+), 22 and 23 cm (age 2+), and 40 cm (age 3 and older), respectively (Fig. 8). Age-1+ and 2+ fish increased 2 cm and 1 cm in length respectively, between the February and April cruises. Age 1+ fish were present in 51 and 65% of the sets, respectively, and composed 2% of the numbers of hake caught in each cruise. Their low abundance is in part related to the increased number of deep (>150 m) tows made during the cruise as they usually occupy the shallower depth strata at this time of year (Cass et al. 1978; McFarlane et al. 1982b). The presence of these young fish in the deeper sets could possibly be a result of capture during setting or hauling back the net. Age 2+ fish were more abundant in February than in April and composed 22% and 7% of the total catch (nos.) in each cruise, respectively. McFarlane et al. (1983) also observed the absence of age-2+ and 3+ fish during April 1981.

This segregation from the rest of the population in the open Strait is not unusual at this time of year. The adult modal length of 40 cm is 4-5 cm smaller than the modal length of hake in 1981 reported by McFarlane et al. (1983). Evidence of a reduction in modal length can be seen in the length frequencies collected from commercial catches during 1982 and 1983 (Shaw unpublished data) (Fig. 9). This reduction in modal length is characteristic of a strong year-class entering the stock.

The age composition was determined from 715 paired otoliths collected from sets 14, 15 and 19. Ages ranged from 1 to 14 yrs with females attaining the older ages. Strong 1981, 1979 and 1978 year-classes were present as age-2+, 4+ and 5+ fish, respectively (Table 5). These are compared with the 1982 age composition (Shaw unpublished data) in Figure 10. Growth curves from this survey are consistent with those determined from the 1982 samples and from previous studies completed in the Strait of Georgia (Beamish et al. 1978a,b; Cass et al. 1978; McFarlane et al. 1982a and b, 1983). Hake grows relatively rapidly to age 4 attaining a mean length of 38.2 cm for males and 39.9 cm for females, after which the rate of growth becomes reduced for the older age-classes (Fig. 10). After age 4 mature females grew larger averaging 2 cm larger than mature males.

The maturity states of hake were examined from a total of 7448 fish in February and 2079 fish in April. During February, the majority of fish were maturing (R_1, R_2) (Table 6). Approximately 10% of the males and 3% of the females were observed to be in a ripe condition. The percentage of ripe and running males (17%) and females (<1%) is similar to that reported in 1981 (McFarlane et al. 1982b). During April, spawning was complete as 81% of the males and 68% of the females were spent or recovering (Table 7). The length at 50% maturity, from probit analysis (Leslie et al. 1945) was 32.0 cm and 30.2 cm for males; and 34.5 and 34.2 for females, during February and April, respectively (Fig. 11), about 3 cm smaller by sex than reported by McFarlane et al. (1983). This apparent reduction in size with maturity could be a density dependent factor which could be influenced by the recruitment of a new strong year-class, which is evident from the age frequency histogram (Fig. 10). The length at 100% maturity for males is 40 cm and 45 cm for females. From probit analysis, the age at 50% maturity for both male and female hake is 3.4 yrs, which is consistent with results from the 1981 survey (McFarlane et al. 1982b). This age corresponds to the estimated length at 50% maturity.

A total of 2081 and 891 hake were examined for stomach contents during the February and April survey, respectively (Tables 8 and 9). Approximately 78% of the hake examined in February and 80% in April had stomachs that were empty or everted. The dominant food items (by volume) in February were unidentified fish remains (30%) and shrimp (17%); in April euphausiids (47%) and leuroglossus (19%) were the main components of the diet. Pacific herring were found only in the February stomach examinations which represented 4% of the total volume. Cannibalism was evident as 9 partially digested juvenile hake ranging in length from 11 to 18 cm were identified in the stomachs of larger hake accounting for 10% of the total gut content (volume), of these fish. The average volume for all fish including empty but excluding everted stomachs was 0.52 cc in February and 0.53 cc in April.

Inshore Areas

During February, Pacific hake were sampled from two tows (sets 4 and 5) in the inshore areas of Howe Sound. A total of 84 males and 147 females were measured for length and examined for sex and maturity (Table 3). Hake ranged in length from 11 to 60 cm with two distinct modal lengths at 22 and 44 cm for males and 22 and 46-47 cm for females (Appendix table 4). Maturity states by sex indicated that 46% of the males and 55% of the females were immature. However, the majority of the males (54%) and females (35%) were maturing (R_1, R_2). Only 8% of the females were in a resting stage.

Pacific hake were also sampled from two tows (sets 45 and 46) in the inshore areas in and near Desolation Sound. A total of 68 males and 49 females were measured for length and examined for sex and maturity (Table 3). The size of hake ranged from 15 to 51 cm (Appendix table 4). The majority of the hake (64%) ranged from 32 to 41 cm with modal lengths at 33 and 35 cm for both males and females. These modal lengths correspond to age-3+ fish which were not abundant elsewhere in the open Strait of Georgia during this survey. Nineteen percent of the males and 51% of the females were immature. The majority of the males (51%) and females (45%) were maturing (R_1, R_2). Only males (28%) were observed to be ripe and running and females (4%) were observed to be spent.

The majority of the tows (sets 20-35) completed in the inshore areas were inside the Gulf Islands area. Hake were found to be abundant only in Stuart Channel. This was also apparent in a 1974 survey in the same area by Beamish et al. (1976b). Male hake composed 51% of the total catch and dominated 50% of the sets. Male hake ranged in length from 12 to 60 cm and females from 13 to 71 cm. Five size classes were evident in the length frequency distribution for males (modal lengths 15, 27, 31, 38 and 45 cm) and for females (modal lengths 14, 26, 31, 39 and 45 cm) (Appendix table 4; Fig. 8). The first length class (14 and 15 cm) represent age-1+ fish which composed 31% of the total catch by numbers. These young fish were concentrated in the northern Stuart Channel area (sets 28-31) and were more abundant than in the open Strait. The mean length of age-1+ fish was 3 cm longer in Stuart Channel than in the open Strait. Beamish et al. (1976b) reported that the growth of similar aged hake in the open Strait lags behind the growth of hake in the Gulf Island area. The second length class (26-27 cm) represent age-2+ fish which are also 3 cm longer in Stuart Channel. These fish were sampled from sets 30 and 31 in the northern end of Stuart Channel. The mean length of age-2+ fish in this survey was 27.3 cm which is comparable to the 28.9 cm of age-2+ fish sampled in 1976 (Beamish et al. 1978b). The third length class (31 cm) represents small age-3+ fish which were not abundant in the open Strait at the time of the survey. These fish were caught mainly in the mid Stuart Channel area. It is possible that these fish have moved into the survey area from outside the Gulf Islands. The larger modal lengths (38-39 and 45 cm) probably represent a range of ages. The majority of the fish with a modal length of 45 cm were females caught in northern Stuart Channel. Less than 1% of the fish sampled were larger than 50 cm which is similar to the observations from the open Strait.

Gonads were examined from 755 males and 726 females of which 38% males and 61% females were immature (Table 6). Majority of the adults were maturing (R_1 R_2) with 14% of the males and 7% of the females in a ripe condition. Approximately 4% of the males and 3% of the females were ripe and running and in a spent condition. It was observed that more mature adults were either spawning or in a post-spawning stage in the Gulf Island area as compared with the hake in the open Strait. It is interesting to note that most of the ripe and running and spent fish were large females (mode at 45 cm) caught in the northern Stuart Channel area opposite Dodd's Narrows. It has been speculated that Stuart Channel contains a stock of large hake that mature and possibly spawn earlier than open Strait hake (Beamish et al. 1976a). The length at 50% maturity, by probit analysis (Leslie et al. 1945) was 30.7 cm and 34.4 cm for male and females, respectively, similar to the result for hake in the open Strait (Fig. 11).

A total of 435 fish were examined for stomach contents of which 319 fish (73%) had stomachs that were empty and everted (Table 8). The principal fish prey item was herring (87% by volume) and sidestripe shrimp was the principal invertebrate prey item (2% by volume). The size range of hake consuming herring was 24-61 cm and the size of herring that were preyed upon ranged from 7-27 cm. Approximately 31% of the hake $\leq$30 cm (age-3+) consumed herring. It is evident that herring is an important component in the hake diet along the inshore areas. Cannibalism was evident in the Gulf Islands area, as two 11 cm partially digested juvenile hake were identified in the stomachs of larger hake accounting for 0.7% of the total gut content (volume), of these fish. The average volume for all fish including empty but excluding everted stomachs was 7.2 cc.

WALLEYE POLLOCK

Walleye pollock were present in 49 of 55 sets in February and 19 of 20 sets in April. A total of 3413 pollock in February and 1155 pollock in April were sampled. A summary of the biological samples collected is given in Tables 10 and 11.

Open Strait

Male pollock composed 64 and 63% of the total catch and dominated 54 and 84% of all sets in February and April, respectively. As previously mentioned, the majority of the tows were made >150 m (82 fath) and segregation by sex with depth during pre-spawning and post-spawning has been well documented.

During both cruises, male pollock ranged in length from 10-53 cm and 11-58 cm for females (Appendix Tables 6 and 7). The majority of the fish were between 35 and 44 cm. Two size-classes for males (modes at 30 and 39 cm) and three for females (modes at 31, 41 and 50 cm) were evident in the February length distribution (Fig. 12). However, only one size-class was evident in

April for males (modal length at 39 cm) and for females (modal length at 41 cm). Age-1+ fish (10-14 cm) were found only in the February samples and composed <1% of the numbers of pollock caught. The majority of these fish were caught off E. Saturna Island at a depth of 238 m (130 fath), which in the past has produced large catches of juveniles (McFarlane et al. 1983). The low abundance of these young fish in the open Strait is a result of their rapid movement into the nearshore areas after spawning (Beamish et al. 1976b; Cass et al. 1978). During the February survey, age-2+ pollock (modal length at 30-31 cm) were caught in abundance off both Porlier and Active pass. Majority of these pollock were caught between 126-146 m (69-80 fath) off Active Pass to the Mayne Island area (sets 7 and 8). The absence of age-2+ pollock during the April survey could be related to the absence of tows made off Active Pass to Mayne Island since age-2+ pollock were caught in abundance in this area during the 1981 survey (McFarlane et al. 1983). The larger modal lengths (39, 41 and 50 cm) represent a range in age. Pollock >50 cm accounted for 4.4% and <1% of the total catch in each cruise, respectively, with females attaining the larger size.

The age composition was determined from 637 left pectoral fins collected from sets 5, 7, 11 and 53 (Table 12a and b). The age range of pollock during both surveys in the Strait of Georgia was from 1 to 8 yr. The age composition was separated into 2 areas: (1) Central Strait of Georgia; (2) Active Pass to east Mayne Island. Pollock in the east Mayne Island area is believed to be a separate component of the same stock in the Strait of Georgia (Shaw and McFarlane, 1983). In past surveys in the east Mayne Island vicinity (Thompson 1981; Thompson and Beamish 1979) larger, older pollock were present in the catches. Pollock in the open Strait ranged in age from 2 to 7 yr with the majority (75%) between 3 and 5 yr. Dominant age-class for both sexes was age-4+ (1979 year-class) (Fig. 13A). Pollock in the east Mayne Island area ranged in age from 1 to 8 yr with the majority of males (91%) between 2 and 5 yr and females (81%) between 3 and 6 yr. Dominant age-classes for males were 2+ and 3+ yr (1981 and 1980 year-classes), and 4+ and 6+ yr (1979 and 1977 year-classes) for females (Fig. 13B). It appears that the 1979 year-class was predominant throughout the Strait of Georgia.

The mean length at age curves for pollock in the Strait of Georgia, other than east Mayne Island, increased rapidly up to age-3+, after which growth was reduced to produce a flattening of the curve for older aged fish. However, growth of east Mayne Island pollock after age-3+ was not as reduced as for the rest of the open Strait of Georgia and was still constant for older fish. The mean lengths at age of east Mayne Island pollock were significantly larger (t-test, $p<0.05$) than pollock of the same age from the open Strait. This is similar to age results from past workers (Thompson 1981; Cass et al. 1980). In both areas, male and female pollock probably have similar annual growth in length up to age-1+ after which the mean lengths of females are significantly larger (t-test, $p<0.05$) with males averaging 2-3 cm smaller than females. The mean length of the 1979 year-class (age-4+) was 39.0 cm in the Strait of Georgia and 41.8 cm off east Mayne Island.

The maturity states of pollock were examined from a total of 1451 fish in February and 579 fish in April. During February, the majority of fish were maturing (R_1, R_2) (Table 13). Approximately 17% and 3% of the males were ripe and ripe and running, respectively. Fewer females (10%) were observed to be ripe; no females were found to be ripe and running. During April spawning was complete as 91% of the males and 86% of the females were spent and resting (Table 14). These results are similar to McFarlane et al. (1983). Length and maturity information for February and April indicated that 50% of the females (33.3 cm and 32.4 cm, respectively) are about 4 cm larger than males (29.0 cm and 29.2 cm, respectively) when they mature to spawn for the first time (Fig. 14). Age at 50% maturity for males and females is 1.5 yr in the Strait of Georgia; and 1.5 yr for males and 2.0 yrs for females off east Mayne Island.

A total of 351 and 303 pollock were examined for stomach contents during the February and April survey, respectively (Tables 15 and 16). Approximately 31% of the pollock examined in February and 37% in April had stomachs that were empty or everted. Planktonic invertebrates are an important component in the pollock diet, in particular euphausiids (47% by volume) being the principal food item in February and amphipods (58% by volume) in April. Fish species constituted only 4% by volume in the diet. The average stomach volume for all fish including empty, but excluding everted stomachs was 1.0 cc in February and 1.2 cc in April; similar to McFarlane et al. (1983).

Inshore Areas

During February, very few walleye pollock were present in the sets made in the inshore areas of Howe Sound and Desolation Sound. Those that were sampled were mostly adult fish ranging in length from 36 to 47 cm (Appendix table 6). Maturity states by sex indicated that majority (50%) of the fish were in a maturing (R_2) stage and 29% were in a ripe condition. Immature fish were present in Howe Sound and ripe and running and spent fish were present in Desolation Sound.

The majority of the tows (sets 20-35) completed in the inshore area were inside the Gulf Islands area. Pollock were found in abundance throughout the Gulf Islands except in Stuart Channel, coincidentally, in areas where very few Pacific hake were found. Beamish et al. (1976b and 1978b) also noted that pollock were not abundant in the same areas as hake. Juvenile pollock were abundant off Porlier Pass and in Tricomali, Swanson and Satellite channels, similar to results by Beamish et al. (1976a). Adults were found in abundance in Swanson and Satellite channels.

Male pollock composed 58% of the total catch and ranged in length from 12-45 cm, and 13-55 cm for females. The size distribution indicated two size-classes with the majority (74%) being juvenile fish, age-1+, (8-19 cm) with a mode at 13 cm (Appendix table 6; Fig. 12). The second size-class represented age-2+ fish with modal lengths at 30 cm for males and 31 cm for females. Both size-classes were more abundant than in the open Strait. Pollock $\geq$35 cm accounted for 3.3% of the total catch (nos.) and pollock >50 cm accounted for <1% of the total catch (nos.), with females attaining the larger size. The low abundance of the older age fish in the Gulf Island is in part due to their movement into the main body of the Strait of Georgia. It appears that most pollock remain in the Gulf Islands area for about 28 mo. (Beamish et al. 1978b).

Gonads were examined from a total of 252 pollock of which 66% males and 68% females were immature (Table 13). Adult pollock were maturing (R_1, R_2) with only 4% males and 3% females in a ripe condition. No spawning or spent pollock were caught. However, few adults were caught and it is unknown if some pollock will spawn sooner in the Gulf Islands than in the open Strait as observed for Pacific hake. The length at 50% maturity was 30.5 cm for males and 33.0 cm for females, similar for pollock in the open Strait (Fig. 14).

A total of 58 pollock were examined for stomach contents, of which 26% were empty and everted (Table 15). Euphausiids were the principal food item (53% by volume). Pacific herring was the secondary food item (25% by volume). In the Gulf Island area, fish are an important component in the diet of pollock representing 40% of the total volume content; ten-fold that found in the open Strait. The average stomach content by volume (excluding everted stomachs) was 0.7 cc.

LAMPREY SCARS

An attempt was made to examine all hake and pollock for scars resulting from lamprey attacks. Scarred fish were encountered throughout the Strait of Georgia. A total of 10 (0.12%) and 5 (0.13%) hake were observed with scars during February and April, respectively. Majority (80%) of these were in the Stuart Channel area during February. A total of 6 (0.28%) and 15 (1.3%) pollock were observed with scars during February and April, respectively. The majority (53%) of these were in the Halibut Bank area during April.

SPINY DOGFISH

Spiny dogfish were present in 29 of 55 tows in February and all tows in April. A total of 838 dogfish in February and 843 dogfish in April were sampled. A summary of the biological samples collected is given in Tables 17 and 18.

Open Strait

Male dogfish composed 53% and 51% of the total catch and dominated 44% and 45% of all sets during February and April, respectively. During both cruises dogfish ranged in length from 26 to 120 cm with the majority <60 cm (Appendix tables 8 and 9). The abundance of juvenile dogfish (<60 cm) was greater in February (97%) than in April (85%). Two distinct modal groups were evident in the size composition at 33 and 50 cm during February and 34 and 39 cm during April (Fig. 15). During February, the majority of the small fish (modal length at 33 cm) were caught off E. Mayne Island and Porlier Pass at depths of 126 and 265 m (70 and 145 fath), respectively. The larger mode at 50 cm were fish caught in Desolation Sound at 229 m (125 fath) depths. During April, majority of the small fish (modal length at 34 cm) were caught off Nanoose at 238 m (130 fath). The larger mode at 40 cm were fish caught off Mitlenatch Island and Halibut Bank area at depths 91 and 101 m (50 and 55 fath), respectively. It is evident that a large portion of the juvenile dogfish (≤60 cm) were caught on the Vancouver Island side of the Strait which is consistent with results from the 1981 survey (McFarlane et al. 1983).

Gonads were examined from a total of 255 dogfish in February and 70 in April. (Tables 19 and 20). The majority (90% and 86%) of the dogfish caught in February and in April, respectively, were immature fish. Approximately 5% and 7% of the adult males were in a ripe condition and a small percentage of the adult females (1% and 4%) contained yolk sac pups, during each cruise, respectively.

Stomach contents were examined from a total of 329 dogfish in February and 66 dogfish in April (Table 21 and 22). Of these, 289 were juveniles (<60 cm) with 51% having empty stomachs in February; and in April 44 were juveniles with 43% having empty stomachs. The average volume of stomach content in juvenile fish (with empty stomachs) during each cruise was 2.7 cc and 0.6 cc, respectively. Dominant food items found in juvenile dogfish, during both cruises, with respect to volume were: Pacific hake and unidentified digested matter. The remaining stomachs examined were from adult dogfish (>60 cm), of which 52% and 73% were empty during February and April, respectively. The average volume of stomach content in adult fish (with empty stomachs) was comparatively more than in juveniles, 45.1 cc in February and 72.2 cc in April. Dominant food items found in adult dogfish, by volume in February, were Pacific hake and unidentified digested matter and in April were unidentified fish remains, walleye pollock and squid. Pacific herring was identified in the stomachs of adult dogfish from the February cruise, composing 21% (by volume) of their diet.

Inshore Areas

During February, spiny dogfish were sampled from 2 tows (sets 45 and 46) in the inshore areas in and near Desolation Sound. A total of 128 dogfish were sampled for length and examined for sex and maturity (Table 17). Dogfish ranged in size from 40 to 64 cm. The majority of the catch were juvenile fish ranging in size from 50-53 cm (Appendix table 8). Maturity states by sex indicated that all fish were immature (Table 19). Stomach contents were examined from all these fish and the dominant food items were leuroglossus and shrimp. No herring were identified in the stomachs.

The majority of the tows (sets 22, 25, 26 and 28) completed in the inshore areas were inside the Gulf Islands area. Very few dogfish were present in the catches. Approximately 58% were caught south of Thetis Island (set 26). Males composed 58% of the total catch and dominated 50% of the sets. Dogfish ranged in length from 26 to 101 cm with most (91%) of them being juveniles (≤ 60 cm) (Appendix table 8; Fig. 15). These fish were mostly immature (Table 19). It appears that during the time of the survey, the Gulf

Island area was not an important rearing area for young dogfish. Very few juvenile dogfish were caught in this area during past surveys (Beamish and Smith 1976) using both bottom trawl and purse-seine gear. Their low abundance in the catches could indicate their preference for the open Strait areas. Only 2 dogfish were examined for stomach contents, of which 1 contained a Pacific herring (50 cc by volume).

BROWN CATSHARK

Brown catshark were present in 5 of 55 sets in February and 14 of 20 sets in April. A summary of the biological samples collected is in Tables 23 and 24.

The depth of capture during February ranged from 165 to 265 m (90-145 fath) with a large catch, within a medium scatter layer, off Porlier Pass (set 13) at 265 m (145 fath). During April, the depth of capture ranged from 179 to 265 m (98-140 fath) with a large catch, within a heavy scatter layer, off Halibut Bank (set 4) at 179 m (98 fath). Males composed 45% and 41% of the catch during February and April, respectively. Brown catshark ranged in length from 28 to 59 cm in February and from 31 to 57 cm in April (Appendix tables 10 and 11, respectively). Majority of the males were larger than females during both cruises, which is consistent with results from past surveys (Shaw et al. 1983a, b).

OTHER SPECIES SAMPLED

A summary of the biological samples collected by species during February is in Table 23. The length frequencies of chinook salmon, Pacific herring, sablefish, flathead and slender soles are presented in Appendix table 12. The length frequencies of English sole and rock sole, Pacific cod, and Pacific tomcod, are presented in Appendix tables 13, 14, 15, and 16, respectively.

ACKNOWLEDGMENTS

The authors appreciate the drafting talents of Kim Rinhofer and thank Shayne MacLellan of the Ageing Lab in the Biological Station for undertaking the arduous task of ageing the Pacific hake otoliths.

REFERENCES

Beamish, R. J. 1979. Differences in the age of Pacific hake (Merluccius productus) using whole otoliths and sections of otoliths. J. Fish. Res. Board Can. 36: 141-151.

1981. Use of fin-ray sections to age walleye pollock, Pacific cod, and albacore, and the importance of this method. Trans. Am. Fish. Soc. 110: 287-199.

Beamish, R. J., and M. S. Smith. 1976. A preliminary report on distribution, abundance, and biology of juvenile spiny dogfish (Squalus acanthias) in the Strait of Georgia and their relationship with other fishes. Fish. Mar. Serv. Tech. Rep. 629: 44 p.

Beamish, R. J., J. R. Scarsbrook, and R. P. Jordan. 1976a. A bottom trawl study of Pacific hake and walleye pollock along the inshore areas and adjacent to Vancouver Island in the Strait of Georgia. Fish. Mar. Serv. Data. Rec. 4: 67 p.

Beamish, R. J., K. R. Weir, J. R. Scarsbrook, and M. S. Smith. 1976b. Growth of young Pacific hake, walleye pollock, Pacific cod and lingcod in Stuart Channel in 1975. Fish. Res. Board Can. MS Rep. 1399: 28 p.

Beamish, R. J., M. Smith, and R. Scarsbrook. 1978a. Hake and pollock study, Strait of Georgia cruise, G.B. REED, January 6-February 21, 1975. Fish. Mar. Serv. Data Rep. 48: 206 p.

Beamish, R. J., K. R. Weir, J. R. Scarsbrook, and M. S. Smith 1978b. Growth of young Pacific hake, walleye pollock, Pacific cod and lingcod in Stuart Channel, British Columbia in 1976. Fish. Mar. Serv. MS Rep. 1518: 111 p.

Cass, A. J., R. J. Beamish, M. S. Smith, and R. J. Scarsbrook. 1978. Hake and pollock study, Strait of Georgia Cruise, G.B. REED, March 27-24, 1975. Fish. Mar. Serv. Data Rep. 50: 66 p.

Cass, A. J., R. J. Beamish, M. S. Smith, and K. Weir. 1980. Hake and pollock study, Strait of Georgia Cruise G.B. REED, January 13-28, 1976. Can. Data Rep. Fish. Aquat. Sci. 225: 88 p.

Leslie, P. H., J. S. Perry, and J. S. Watson. 1945. The determination of the median body-weight at which female rats reach maturity. Proc. Zool. Soc. Lond. 115: 473-488.

McFarlane, G. A., R. J. Beamish, and K. R. Weir. 1982a. Study of the biology and distribution of Pacific hake during the first commercial fishery conducted in the Strait of Georgia by the M/V CALLISTRATUS. February 16-17, March 10-April 3, and May 12, 1979. Can. MS Rep. Fish. Aquat. Sci. 1650: 111 p.

McFarlane, G. A., W. Shaw, J. M. Thompson, J. R. Scarsbrook, M. S. Smith, and K. L. Best. 1982b. Hake and pollock study, Strait of Georgia cruises, February to May 1981, M/V ARCTIC HARVESTER. Can. Data Rep. Fish. Aquat. Sci. 339: 456 p.

McFarlane, G. A., W. Shaw, and R. J. Beamish. 1983. Observations on the biology and distribution of Pacific hake, walleye pollock, and spiny dogfish in the Strait of Georgia--February 20-May 2 and July 3, 1981. Can. MS Rep. Fish. Aquat. Sci. 1722: 109 p.

Shaw, W., G. A. McFarlane, and R. J. Beamish. 1983a. Biological study of Pacific hake, walleye pollock, and spiny dogfish in the Strait of Georgia. R/V G.B. REED, March 22-April 2, 1976. Can. Data Rep. Fish. Aquat. Sci. 398: 76 p.

Shaw, W., G. A. McFarlane, and R. J. Beamish. 1983b. An examination of the biology and distribution of Pacific hake, walleye pollock and spiny dogfish in the Strait of Georgia. R/V G.B. REED, May 25-June 18, 1976. Can. MS Rep. Fish. Aquat. Sci. 1697: 240 p.

Shaw, W. and G. A. McFarlane. 1983. Biology, distribution and abundance of walleye pollock (Theragra chalcogramma) off the west coast of Canada. Presented at the Special Groundfish Symposium of the International North Pacific Fisheries Commission, Anchorage, Alaska, October 26-28, 1983.

Thompson, J. M. 1981. Preliminary report on the population biology and fishery of walleye pollock (Theragra chalcogramma) off the Pacific coast of Canada. Can. Tech. Rep. Fish. Aquat. Sci. 1031: 157 p.

Thompson, J. M. and R. J. Beamish. 1979. An examination of the biology and distribution of walleye pollock in Dixon Entrance, Hecate Strait, and the mainland inlets off Queen Charlotte Sound, and in the Strait of Georgia during March 14-April 21, 1978. Can. Data. Rep. Fish. Aquat. Sci. 173: 188 p.

Thompson, J. M. and G. A. McFarlane. 1982. Distribution and abundance of Pacific hake and walleye pollock in the Strait of Georgia, March 24-May 2, 1981. Can. MS Rep. Fish. Aquat. Sci. 1661: 79 p.

Thomson, R. E. 1981. Oceanography of the British Columbia coast. Can. Spec. Publ. Fish. Aquat. Sci. 56: 291 p.

Weir, K. R., R. J. Beamish, M. S. Smith, and J. R. Scarsbrook. 1978. Hake and pollock study, Strait of Georgia bottom trawl cruise G.B. REED, February 25-March 13, 1975. Fish Mar. Serv. Data Rep. 71: 153 p.

Westrheim, S. J. 1967. Sampling trawl catches at sea. J. Fish. Res. Board Can. 24(6): 1187-1202.

Table 1. Locations of core samples using the Benthos corer. G.B. REED, February 7-28, 1983. (A & B denote paired samples.)

Core no.	Date	Area	Latitude	Longitude	Depth (m)
1A	Feb 7	Halibut Bank	49°19.5	123°37.01	285
1B	"	"	49°19.02	123°37.02	280
2	Feb 10	Active Pass	48°51.05	123°11.09	212
3	Feb 10	S. Porlier Pass	49°01.04	123°28.03	252
4	Feb 10	N. Porlier Pass	49°04.45	123°32.40	282
5A	Feb 11	Roberts Bank	49°03.8	123°24.50	282
5B	"	"	49°03.8	123°25.10	298
6	Feb 14	Saanich Inlet	48°39.7	123°30.70	170
7	Feb 14	Saanich Inlet	48°35.2	123°30.20	229
8	Feb 14	Stuart Channel	48°52.3	123°35.48	212
9	Feb 18	Sabine Channel	49°32.9	124°21.10	234
10	Feb 19	S. Hornby Island	49°30.0	124°28.9	181
11A	Feb 20	Thormanby Island	49°26.0	124°01.0	409
11B	"	"	49°26.0	124°01.0	409
12A	Feb 21	Malaspina Strait	49°39.7	124°16.4	351
12B	"	"	49°39.7	124°16.4	348
13A	Feb 24	Mitlenatch Island	49°54.3	125°02.9	262
13B	"	"	49°54.4	125°02.2	300
14	Feb 24	Cape Lazo	49°46.2	125°46.8	358
15	Feb 27	Halibut Bank	49°15.6	123°39.6	390

Table 2. Water temperature (°C) by station and by depth using the XBT. G.B. REED, April 18-24, 1983.

Station no.	Date	Location	Surface (°C)	Midwater (°C)				Bottom depth (m)	Bottom (°C)
				91m	164m	201m	256m		
A	04/18	49°15.0' 123°39.8'	11.6	9.0	9.0	9.1	9.2	393	9.2
B	04/21	49°23.6' 124°12.2'	12.3	9.0	9.0	9.2	9.4	311	9.4
C	04/21	49°35.7' 124°27.2'	11.3	9.7	9.6	9.7	9.7	289	9.7
D	04/21	49°30.2' 124°29.2'	11.1					74	9.7
E	04/21	49°42.2' 124°38.2'	11.5	8.6	8.8	9.0	9.3	335	9.4
F	04/22	49°49.0' 124°50.8'	11.2	8.7	8.9	9.1	9.2	346	9.3
G	04/22	49°55.8' 125°01.5'	11.4	8.7	8.9	9.2	9.3	282	9.3
H	04/23	49°25.5' 124°02.4'	12.7	8.9	9.0	9.1	9.3	406	9.4
I	04/23	49°21.9' 123°51.6'	11.9	8.8	9.1	9.2	9.3	402	9.4
J	04/24	49°18.2' 123°51.9'	11.8	8.9	9.0	9.2	9.2	421	9.4
Temperature range (°C)			11.1-12.7	8.6-9.7	8.8-9.6	9.0-9.7	9.2-9.7		9.2-9.7
$\bar{x}$ temperature (°C)			11.7	8.9	9.0	9.2	9.3		9.4

Table 3. Summary of Pacific hake sampled. G.B. REED, February 7-28, 1983. (Sets 20-35 inside Gulf Islands.)

Set no.	Average net depth (m)	Length M	Length F	Length T	Maturity	Fecundity	Stomach contents	Stomach weights	Paired otoliths	Remarks
1	234	159	115	277	274	-	162	-	-	T.C[a].; 80 stomachs collected
2	132	9	12	21	21	-	13	-	-	T.C.
4	189	64	100	164	164	-	104	-	-	T.C.; 60 stomachs collected
5	165	20	47	67	67	-	42	-	-	T.C.
6	166	100	125	225	225	-	59	-	-	T.C.; 60 stomachs collected
7	126	124	46	170	170	2	154	-	160	T.C.
8	146	55	19	74	74	-	-	-	-	T.C.; 66 stomachs collected
9	165	92	55	147	147	2	-	-	2	T.C.; 34 stomachs collected
10	185	146	85	231	231	5	1	-	137	T.C.
11	238	238	161	400	399	1	42	-	1	T.C.; 100 stomachs collected
12	128	4	16	20	20	1	1	-	1	T.C.
13	265	130	200	330	330	-	49	-	-	Random 3 tubs
14	256	124	102	226	226	-	-	-	227	T.C.; 100 stomachs collected
15	201	154	117	271	271	-	2	-	267	T.C.
16	174	43	53	96	96	-	2	-	-	T.C.
19	183	171	157	328	328	2	-	-	224	T.C.; 100 stomachs collected
21	77	5	1	6	6	-	-	-	-	T.C.
22	80	3	4	7	7	-	7	-	-	T.C.
23	71	11	6	17	17	-	17	4	-	T.C.
25	149	29	36	76	65	4	60	20	4	T.C.
26	131	172	114	286	286	4	-	-	134	Random 2 tubs
27	86	109	131	248	240	9	51	8	9	Random 2 tubs

Table 3 (cont'd)

Set no.	Average net depth (m)	Length M	Length F	Length T	Maturity	Fecundity	Stomach contents	Stomach weights	Paired otoliths	Remarks
28	81	94	186	318	280	8	3	3	8	Random 2 tubs
30	64	199	76	801	275	-	-	-	-	T.C.
31	63	128	168	298	296	5	294	28	5	T.C.
32	57	2	4	6	6	-	-	-	-	T.C.
34	52	3	0	3	3	-	3	1	-	T.C.
36	189	4	2	6	6	-	-	-	-	T.C.
38	187	205	169	383	374	1	197	32	1	T.C.
40	146	12	16	29	28	-	-	-	-	T.C.
41	188	123	97	220	220	-	-	-	220	Random 2 tubs; 100 stomachs collected
42	187	118	99	217	140	-	140	19	-	T.C.
43	229	192	141	333	220	1	139	-	1	T.C.
45	185	2	7	9	9	1	8	-	1	T.C.
46	229	66	42	108	108	-	108	-	-	T.C.
47	185	219	37	256	256	2	-	-	243	T.C.
48	220	255	45	300	300	1	107	-	192	Random 3 tubs
49	247	163	97	260	260	1	50	-	260	T.C.
50	183	104	98	202	202	-	70	-	-	T.C.; 100 stomachs collected
51	238	124	123	247	247	-	-	-	247	T.C.
52	256	192	122	316	178	-	136	-	-	T.C.; 100 stomachs collected
53	183	228	100	328	109	1	59	-	1	T.C.; 50 stomachs collected
54	238	179	124	303	120	-	-	-	-	T.C.
55	165	117	30	147	147	1	-	-	1	T.C.
Total		4691	3485	8777	7448	52	2081	115	2346	

[a] T.C. = Total catch sampled.

Table 4. Summary of Pacific hake sampled. G.B. REED, April 18-24, 1983.

Set no.	Average net depth (m)	Length			Maturity	Fecundity	Stomach contents	Stomach weights	Remarks
		M	F	T					
1	201	103	17	120	120	-	40	-	T.C.[a]
2	245	247	374	621	213	38	60	214	Random 6/16 tubs
3	183	686	7	693	234	-	37	234	Random 6 tubs
4	179	467	14	481	-	-	-	-	Random 4/6 tubs
6	192	89	40	129	129	-	129	-	T.C.
7	238	115	67	182	182	2	104	2	T.C.
8	110	88	198	286	186	5	89	5	Random 3/6 tubs
9	146	29	59	88	88	1	88	1	T.C.
10	256	69	9	78	78	-	78	-	T.C.
11	110	2	11	13	13	-	13	-	T.C.
12	238	74	11	85	85	-	38	-	T.C.
13	101	24	54	78	78	-	78	-	T.C.
14	183	146	116	266	96	-	41	-	T.C.
15	210	81	25	106	106	-	34	-	T.C.
16	238	172	245	417	110	-	42	-	Random 5/9 tubs
17	201	117	5	122	122	-	20	-	T.C.
18	183	105	24	129	129	-	-	-	T.C.
19	210	65	37	102	102	-	-	-	T.C.
20	110	8	0	8	8	-	8	-	T.C.
Total		2687	1313	4004	2079	46	891	456	

[a] T.C. = Total catch sampled.

Table 5. Mean size of Pacific hake for each age class in set numbers 14, 15, and 19. G.B. REED, February 7-28, 1983.

	Male			Female			Total		
Age	$\bar{x}$	S.D.	N	$\bar{x}$	S.D.	N	$\bar{x}$	S.D.	N
1				11.0	0.00	1	11.0	0.00	1
2	21.9	2.51	100	22.3	2.14	110	22.1	2.32	210
3	30.6	3.42	26	29.9	3.71	33	30.2	3.57	59
4	38.6	2.17	74	39.9	2.17	65	39.2	2.26	139
5	39.5	2.36	95	39.8	2.62	61	39.6	2.46	156
6	40.3	1.92	25	42.2	2.12	14	41.0	2.17	39
7	42.1	1.65	23	44.0	1.54	7	42.5	1.79	30
8	43.6	1.91	16	44.9	1.39	5	43.9	1.85	21
9	43.3	1.34	13	45.9	3.22	5	44.0	2.27	18
10	43.6	1.67	11	44.8	0.00	1	43.7	1.63	12
11	43.7	0.97	7	45.8	2.33	8	44.8	2.06	15
12	44.4	0.28	2	48.6	6.12	5	47.4	5.41	7
13	44.9	1.06	3	46.5	2.50	4	45.8	2.06	7
14				47.8	0.00	1	47.8	0.00	1
Total			395			320			715

Table 6. Pacific hake maturity frequency by haul. G.B. REED, Febuary 7-28, 1983.

Set no. Gonad maturity	1			2			4			5		
stage	M	F	T	M	F	T	M	F	T	M	F	T
I1	6	45	51	5	5	10	3	18	21	2	7	9
I2	40	24	64	0	0	0	28	47	75	6	9	15
R1	72	37	109	4	3	7	30	18	48	9	22	31
R2	32	3	35	-	2	2	3	6	9	3	6	9
R	9	6	15	-	0	0	-	1	1	-	0	0
1R	-	-	-	-	0	0	-	0	0	-	0	0
2R	-	-	-	-	0	0	-	0	0	-	1	1
RR	-	-	-	-	0	0	-	0	0	-	0	0
S	-	-	-	-	0	0	-	0	0	-	0	0
Rb	-	-	-	-	0	0	-	0	0	-	0	0
Rc	-	-	-	-	0	0	-	0	0	-	0	0
Rt	-	-	-	-	2	2	-	10	10	-	2	2
Total	159	115	274	9	12	21	64	100	164	20	47	67

Set no. Gonad maturity	6			7			8			9		
stage	M	F	T	M	F	T	M	F	T	M	F	T
I1	23	52	75	3	6	9	1	5	6	1	-	1
I2	31	3	34	8	3	11	2	0	2	2	-	2
R1	21	33	54	37	15	52	39	8	47	74	11	85
R2	24	27	51	62	13	75	13	4	17	13	40	53
R	1	0	1	14	4	18	-	1	1	2	1	3
1R	-	0	0	-	0	0	-	0	0	-	0	0
2R	-	0	0	-	1	1	-	0	0	-	2	2
RR	-	0	0	-	0	0	-	0	0	-	0	0
S	-	0	0	-	0	0	-	0	0	-	0	0
Rb	-	0	0	-	0	0	-	0	0	-	0	0
Rc	-	0	0	-	0	0	-	0	0	-	0	0
Rt	-	10	10	-	4	4	-	1	1	-	1	1
Total	100	125	225	124	46	170	55	19	74	92	55	147

Table 6 (cont'd)

Set no. Gonad maturity stage	10			11			12			13		
	M	F	T	M	F	T	M	F	T	M	F	T
I1	-	7	7	2	43	45	-	-	-	2	24	26
I2	7	4	11	32	21	53	-	-	-	18	17	35
R1	66	30	96	122	53	175	3	7	10	86	96	182
R2	66	34	100	79	39	118	1	8	9	24	56	80
R	7	5	12	3	1	4	-	1	1	-	0	0
1R	-	0	0	-	0	0	-	-	-	-	0	0
2R	-	0	0	-	0	0	-	-	-	-	0	0
RR	-	0	0	-	0	0	-	-	-	-	0	0
S	-	0	0	-	0	0	-	-	-	-	0	0
Rb	-	0	0	-	0	0	-	-	-	-	0	0
Rc	-	0	0	-	0	0	-	-	-	-	0	0
Rt	-	5	5	-	4	4	-	-	-	-	7	7
Total	146	85	231	238	161	399	4	16	20	130	200	330

Set no. Gonad maturity stage	14			15			16			19		
	M	F	T	M	F	T	M	F	T	M	F	T
I1	10	39	49	8	55	63	5	13	18	6	54	60
I2	38	13	51	50	4	54	5	1	6	44	18	62
R1	48	35	83	82	45	127	24	20	44	107	65	172
R2	27	11	38	14	7	21	9	12	21	14	13	27
R	1	0	1	-	1	1	-	0	0	-	2	2
1R	-	0	0	-	0	0	-	0	0	-	0	0
2R	-	0	0	-	0	0	-	0	0	-	0	0
RR	-	0	0	-	0	0	-	0	0	-	0	0
S	-	0	0	-	0	0	-	0	0	-	0	0
Rb	-	0	0	-	0	0	-	0	0	-	0	0
Rc	-	0	0	-	0	0	-	0	0	-	0	0
Rt	-	4	4	-	5	5	-	7	7	-	5	5
Total	124	102	226	154	117	271	43	53	96	171	157	328

Table 6 (cont'd)

Set no. Gonad maturity stage	21			22			23			25		
	M	F	T	M	F	T	M	F	T	M	F	T
I1	-	1	1	-	2	2	1	4	5	3	21	24
I2	2	-	2	-	0	0	2	0	2	7	3	10
R1	0	-	0	3	1	4	6	2	8	7	1	8
R2	3	-	3	-	1	1	2	-	2	12	7	19
R	-	-	-	-	-	-	-	-	-	-	1	1
1R	-	-	-	-	-	-	-	-	-	-	2	2
2R	-	-	-	-	-	-	-	-	-	-	1	1
RR	-	-	-	-	-	-	-	-	-	-	-	-
S	-	-	-	-	-	-	-	-	-	-	-	-
Rb	-	-	-	-	-	-	-	-	-	-	-	-
Rc	-	-	-	-	-	-	-	-	-	-	-	-
Rt	-	-	-	-	-	-	-	-	-	-	-	-
Total	5	1	6	3	4	7	11	6	17	29	36	65

Set no. Gonad maturity stage	26			27			28			30		
	M	F	T	M	F	T	M	F	T	M	F	T
I1	3	57	60	12	54	66	10	100	110	25	46	71
I2	44	12	56	17	16	33	41	21	62	31	2	33
R1	97	18	115	32	25	57	25	25	50	19	3	22
R2	26	12	38	42	25	67	10	26	36	26	3	29
R	2	7	9	6	7	13	8	10	18	72	12	84
1R	-	3	3	-	1	1	-	1	1	0	3	3
2R	-	4	4	-	3	3	-	3	3	0	5	5
RR	-	1	1	-	-	-	-	-	-	20	2	22
S	-	-	-	-	-	-	-	-	-	6	-	6
Rb	-	-	-	-	-	-	-	-	-	-	-	-
Rc	-	-	-	-	-	-	-	-	-	-	-	-
Rt	-	-	-	-	-	-	-	-	-	-	-	-
Total	172	114	286	109	131	240	94	186	280	199	76	275

Table 6 (cont'd)

Set no.	31			32			34			36		
Gonad maturity stage	M	F	T	M	F	T	M	F	T	M	F	T
I1	27	88	115	1	2	3	-	-	-	-	-	-
I2	58	13	71	0	1	1	1	-	1	-	-	-
R1	14	15	29	0	1	1	0	-	0	-	1	1
R2	13	31	44	0	-	0	0	-	0	-	1	1
R	14	17	31	1	-	1	1	-	1	2	-	2
1R	0	2	2	-	-	-	0	-	0	0	-	0
2R	0	0	0	-	-	-	0	-	0	0	-	0
RR	1	0	1	-	-	-	0	-	0	2	-	2
S	1	0	1	-	-	-	1	-	1	-	-	-
Rb	-	0	0	-	-	-	-	-	-	-	-	-
Rc	-	0	0	-	-	-	-	-	-	-	-	-
Rt	-	2	2	-	-	-	-	-	-	-	-	-
Total	128	168	296	2	4	6	3	0	3	4	2	6

Set no.	38			40			41			42		
Gonad maturity stage	M	F	T	M	F	T	M	F	T	M	F	T
I1	60	52	112	-	-	-	25	36	61	-	21	21
I2	7	7	14	-	1	1	7	2	9	30	1	31
R1	12	64	76	2	11	13	5	38	43	9	17	26
R2	43	41	84	2	4	6	17	19	36	16	11	27
R	24	2	26	1	-	1	17	1	18	15	0	15
1R	0	0	0	0	-	0	0	0	0	0	0	0
2R	0	1	1	0	-	0	0	0	0	0	0	0
RR	39	0	39	7	-	7	40	0	40	4	0	4
S	20	0	20	-	-	-	12	0	12	7	4	11
Rb	-	0	0	-	-	-	-	0	0	-	0	0
Rc	-	1	1	-	-	-	-	0	0	-	0	0
Rt	-	1	1	-	-	-	-	1	1	-	5	5
Total	205	169	374	12	16	28	123	97	220	81	59	140

Table 6 (cont'd)

Set no. Gonad maturity stage	43			45			46			47		
	M	F	T	M	F	T	M	F	T	M	F	T
I1	2	38	40	-	1	1	1	20	21	7	21	28
I2	30	10	40	-	0	0	12	4	16	13	0	13
R1	22	21	43	-	1	1	14	8	22	0	4	4
R2	40	18	58	-	2	2	13	7	20	37	6	43
R	12	2	14	1	1	2	7	0	7	69	3	71
1R	0	0	0	0	0	0	0	0	0	0	1	1
2R	0	0	0	0	0	0	0	0	0	0	0	0
RR	7	0	7	1	0	1	18	0	18	89	0	89
S	7	5	12	-	1	1	1	2	3	4	1	5
Rb	0	0	0	-	0	0	-	0	0	-	0	0
Rc	0	0	0	-	1	1	-	0	0	-	0	0
Rt	1	5	6	-	-	-	-	1	1	-	1	1
Total	121	99	220	2	7	9	66	42	108	219	37	256

Set no. Gonad maturity stage	48			49			50			51		
	M	F	T	M	F	T	M	F	T	M	F	T
I1	3	6	9	8	29	37	5	24	29	9	49	58
I2	8	0	8	6	1	7	14	2	16	58	5	63
R1	2	6	8	5	22	27	7	27	34	2	26	28
R2	46	21	67	19	30	49	15	28	43	7	19	26
R	40	3	43	11	3	14	5	1	6	1	0	1
1R	0	1	1	0	1	1	0	0	0	0	0	0
2R	0	1	1	0	1	1	0	0	0	0	0	0
RR	144	0	144	106	0	106	48	3	51	41	0	41
S	11	3	14	8	4	12	10	3	13	6	12	18
Rb	0	0	0	-	0	0	-	0	0	-	0	0
Rc	1	3	4	-	6	6	-	10	10	-	12	12
Rt	-	1	1	-	-	-	-	-	-	-	-	-
Total	255	45	300	163	97	260	104	98	202	124	123	247

Table 6 (cont'd)

Set no. Gonad maturity stage	52			53			54			55		
	M	F	T	M	F	T	M	F	T	M	F	T
I1	-	26	26	-	6	6	2	16	18	-	2	2
I2	45	3	48	4	0	4	10	3	13	4	1	5
R1	8	9	17	4	12	16	2	8	10	3	7	10
R2	11	12	23	17	10	27	13	20	33	18	15	33
R	2	1	3	11	2	13	28	1	29	35	2	37
1R	0	0	0	0	0	0	0	0	0	0	0	0
2R	0	0	0	0	0	0	0	0	0	0	0	0
RR	40	0	40	37	0	37	14	0	14	49	0	49
S	12	1	13	3	0	3	-	1	1	7	0	7
Rb	0	0	0	0	0	0	-	0	0	0	0	0
Rc	1	6	7	2	0	2	-	0	0	1	3	4
Rt	-	1	1	-	1	1	-	2	2	-	-	-
Total	119	59	178	78	31	109	69	51	120	117	30	147

Set no. Gonad maturity stage	Total		
	M	F	T
I1	281	1095	1376
I2	762	272	1034
R1	1124	871	1995
R2	832	650	1482
R	422	99	521
1R	0	15	15
2R	0	23	23
RR	707	6	713
S	116	37	153
Rb	0	0	0
Rc	5	42	47
Rt	1	88	89
Total	4250	3198	7448

Table 7. Pacific hake maturity frequency by haul. G.B. REED, April 18-24, 1983.

Set no. Gonad maturity	1			2			3			6		
stage	M	F	T	M	F	T	M	F	T	M	F	T
I1	1	10	11	-	-	-	-	-	-	5	14	19
I2	11	0	11	-	-	-	-	-	-	5	4	9
R1	2	0	2	1	-	1	-	-	-	1	0	1
R2	0	0	0	0	-	0	-	-	-	0	0	0
R	0	0	0	0	16	16	3	-	3	0	1	1
1R	0	0	0	0	2	2	0	-	0	0	0	0
2R	0	0	0	0	17	17	0	1	1	0	0	0
RR	0	0	0	0	1	1	0	0	0	1	0	1
S	54	0	54	46	13	59	140	0	140	29	3	32
Rb	0	1	1	0	0	0	0	0	0	0	0	0
Rc	32	5	37	26	81	107	81	2	83	34	18	52
Rt	3	1	4	3	7	10	7	-	7	14	-	14
Total	103	17	120	76	137	213	231	3	234	89	40	129

Set no. Gonad maturity	7			8			9			10		
stage	M	F	T	M	F	T	M	F	T	M	F	T
I1	1	7	8	-	-	-	4	2	6	1	2	3
I2	4	3	7	-	-	-	0	0	0	2	0	2
R1	0	0	0	-	-	-	0	0	0	0	0	0
R2	0	0	0	-	-	-	0	0	0	0	0	0
R	0	5	5	-	3	3	0	0	0	0	0	0
1R	0	1	1	-	0	0	0	0	0	0	0	0
2R	0	7	7	-	0	0	0	1	1	0	0	0
RR	9	1	10	2	0	2	0	0	0	3	0	3
S	61	2	63	24	6	30	11	3	14	34	0	34
Rb	0	2	2	0	0	0	0	0	0	0	0	0
Rc	24	34	58	23	91	114	9	49	58	19	4	23
Rt	16	5	21	15	22	37	5	4	9	10	3	13
Total	115	67	182	64	122	186	29	59	88	69	9	78

Table 7 (cont'd)

Set no. Gonad maturity stage	11			12			13			14		
	M	F	T	M	F	T	M	F	T	M	F	T
I1	-	-	-	4	5	9	-	-	-	14	14	28
I2	-	-	-	0	0	0	-	-	-	23	5	28
R1	-	-	-	0	0	0	-	-	-	0	0	0
R2	-	-	-	0	0	0	-	-	-	0	0	0
R	-	-	-	0	0	0	-	-	-	0	0	0
1R	-	-	-	0	0	0	-	-	-	0	0	0
2R	-	-	-	0	0	0	-	-	-	0	0	0
RR	-	-	-	2	0	2	-	-	-	0	0	0
S	-	-	-	40	0	40	-	-	-	2	2	4
Rb	-	-	-	0	0	0	-	-	-	0	0	0
Rc	1	6	7	27	6	33	10	43	53	14	18	32
Rt	1	5	6	1	-	1	14	11	25	3	1	4
Total	2	11	13	74	11	85	24	54	78	56	40	96

Set no. Gonad maturity stage	15			16			17			18		
	M	F	T	M	F	T	M	F	T	M	F	T
I1	13	11	24	2	3	5	5	4	9	2	2	4
I2	7	3	10	0	0	0	0	0	0	16	7	23
R1	0	0	0	0	0	0	0	0	0	0	0	0
R2	0	0	0	0	0	0	0	0	0	0	0	0
R	0	0	0	1	7	8	0	0	0	0	0	0
1R	0	0	0	0	0	0	0	0	0	0	0	0
2R	0	0	0	0	2	2	0	0	0	0	0	0
RR	0	0	0	0	2	2	0	0	0	0	0	0
S	27	1	28	24	13	37	65	0	65	14	3	17
Rb	0	0	0	0	0	0	0	0	0	0	0	0
Rc	31	10	41	19	37	56	46	1	47	71	12	83
Rt	3	-	3	-	-	-	1	-	1	2	-	2
Total	81	25	106	46	64	110	117	5	122	105	24	129

Table 7 (cont'd)

Set no. Gonad maturity stage	19			20			Total		
	M	F	T	M	F	T	M	F	T
I1	-	-	-	7	-	7	59	74	133
I2	1	3	4	0	-	0	69	25	94
R1	0	0	0	0	-	0	4	0	4
R2	0	0	0	0	-	0	0	0	0
R	0	0	0	0	-	0	4	32	36
1R	0	0	0	0	-	0	0	3	3
2R	0	0	0	0	-	0	0	28	28
RR	0	0	0	0	-	0	17	4	21
S	1	4	5	0	-	0	572	50	622
Rb	0	0	0	0	-	0	0	3	3
Rc	60	25	85	1	-	1	528	442	970
Rt	3	5	8	-	-	-	101	64	165
Total	65	37	102	8	0	8	1354	725	2079

Table 8. Pacific hake stomach contents. G.B. REED, February 7-28, 1983.

	Gulf Islands	Open strait	Total
Number examined	435	1646	2081
Number empty	167	735	902
Number everted	152	551	703
Food items	Volume (cc)	Volume (cc)	Volume (cc)
Herring	1776	25	1801
Fish remains (unid.)	51	171	222
Hake	15	58	73
Leuroglossus	0	63	63
Slender sole	48	0	48
Flathead sole	38	0	38
Midshipman	25	0	25
Sculpin	13	0	13
Myctophid	-	8	8
Shrimp (unid.)	17	100	117
Glass shrimp	1	80	81
Euphausiid	4	43	47
Side stripe shrimp	42	0	42
Amphipods	1	16	17
Squid	3	5	8
Digested white matter	2	3	5
Pink shrimp	2	1	3
Polychaete	1	-	1
Total	2039	573	2612

Table 9. Pacific hake stomach contents. G.B. REED, April 18-24, 1983.

Number examined	891	
Number empty	460	
Number everted	253	
Food items	**Volume (cc)**	**%**
Leuroglossus	65	19.1
Fish remains (unid.)	12	3.5
Euphausiid	160	46.9
Shrimp	52	15.2
Glass shrimp	29	8.5
Squid	13	3.8
Amphipods	9	2.6
Digested matter	1	0.3
Total	341	

Table 10. Summary of walleye pollock sampled. G.B. REED, February 7-28, 1983.

Set no.	Length M	Length F	Length T	Maturity	Stomach contents	Pectoral fin	Sampling remarks
1	11	9	20	20	-	-	T.C.[a]
2	6	7	13	13	-	-	T.C.
3	23	8	31	31	31	-	T.C.
4	1	0	1	1	1	-	T.C.
5	0	2	2	2	1	0	T.C.
6	24	18	42	42	40	-	T.C.
7	131	77	208	208	-	206	Random 3 tubs
8	95	32	127	127	-	127	Random 2 tubs
9	68	53	121	121	-	-	T.C.
10	11	21	32	32	-	-	T.C.
11	120	67	187	187	100	-	T.C.
12	14	5	19	19	-	-	T.C.
13	36	36	72	72	-	-	T.C.
14	8	8	16	16	-	-	T.C.
15	7	1	8	8	-	-	T.C.
16	10	3	13	13	-	-	T.C.
18	14	15	29	29	-	-	T.C.
19	41	21	62	62	35	-	T.C.
20	47	29	260	76	58	-	T.C.
21	46	32	203	78	-	-	T.C.
22	26	27	113	53	-	-	T.C.
23	94	69	374	-	-	-	T.C.
25	3	5	17	8	-	-	T.C.
26	0	0	13	-	-	-	T.C.
28	9	6	15	15	-	-	T.C.
30	5	5	18	-	-	-	T.C.
31	5	3	9	-	-	-	T.C.
32	12	10	23	22	-	-	T.C.
33	0	0	118	-	-	-	T.C.
34	0	0	377	-	-	-	T.C.
35	0	0	159	-	-	-	T.C.
36	11	4	15	15	-	-	T.C.
38	4	2	6	6	-	-	T.C.
39	12	22	34	34	-	-	T.C.
40	4	8	12	12	-	-	T.C.
41	1	1	2	2	2	-	T.C.
42	3	1	4	4	4	-	T.C.
43	1	1	2	2	2	-	T.C.
44	9	13	22	22	22	-	T.C.
45	4	7	11	11	11	-	T.C.
46	2	1	3	3	3	-	T.C.
47	16	5	21	21	21	-	T.C.
48	9	13	12	12	-	-	T.C.
49	2	2	4	4	4	-	T.C.
51	1	5	6	6	6	-	T.C.

Table 10 (cont'd)

Set no.	Length M	Length F	Length T	Maturity	Stomach contents	Pectoral fin	Sampling remarks
52	10	9	19	19	19	-	T.C.
53	94	49	143	143	50	143	T.C.
54	24	26	50	50	-	-	T.C.
55	301	44	345	82	-	-	T.C.
Total	1375	772	3413	1703	409	476	

[a] T.C. = Total catch sampled.

Table 11. Summary of walleye pollock sampled. G.B. REED, April 18-24, 1983.

Set no.	Length			Maturity	Stomach contents	Pectoral fin	Sampling remarks
	M	F	T				
1	6	2	8	8	8	-	T.C.[a]
2	7	4	11	11	11	-	T.C.
3	3	3	6	6	-	-	T.C.
4	57	12	69	69	-	-	T.C.
5	266	140	406	202	91	202	Random 4 tubs
6	5	1	6	6	6	-	T.C.
7	1	1	2	-	-	-	T.C.
8	9	12	21	21	21	-	T.C.
9	4	4	8	8	8	-	T.C.
10	7	4	11	11	11	-	T.C.
11	89	85	174	174	85	174	T.C.
12	199	125	232	-	-	-	T.C.
13	33	13	46	-	-	-	T.C.
14	4	3	7	7	7	-	T.C.
15	6	0	6	6	6	-	T.C.
16	4	3	7	7	7	-	T.C.
17	7	2	9	9	9	-	T.C.
18	7	1	8	8	8	-	T.C.
19	3	0	3	3	3	-	T.C.
20	14	9	23	23	23	-	T.C.
Total	731	424	1155	579	303	376	

[a] T.C. = Total catch sampled.

Table 12a. Mean size of walleye pollock for each age-class in the open Strait (Sets 5, 11 and 53). R/V G.B. REED.

	Male			Female			Total		
Age	X̄	S.D.	N	X̄	S.D.	N	X̄	S.D.	N
2	31.8	2.14	4	35.5	0.00	1	32.5	2.48	5
3	38.4	2.27	61	39.9	1.82	34	38.9	2.23	95
4	37.9	1.56	95	40.7	2.45	66	39.0	2.40	161
5	38.8	2.14	45	41.7	3.10	24	39.8	2.87	69
6	38.2	1.54	5	42.8	2.70	6	40.7	3.21	11
7	42.8	0.00	1	-	-	-	42.8	0.00	1
Total			211			131			431

Table 12b. Mean size of walleye pollock for each age-class in the east Mayne Island area (set 7). R/V G.B. REED.

	Male			Female			Total		
Age	X̄	S.D.	N	X̄	S.D.	N	X̄	S.D.	N
1	13.4	0.00	1	-	-	-	13.4	0.00	1
2	29.4	1.66	33	30.8	2.12	8	29.7	1.82	41
3	35.9	3.65	33	38.2	4.40	12	36.5	3.95	45
4	40.5	3.53	25	43.5	2.78	20	41.8	3.50	45
5	43.0	3.42	16	46.4	2.93	9	44.2	3.60	25
6	47.6	1.83	8	49.7	3.59	16	49.0	3.24	24
7	49.3	0.35	2	50.7	0.60	4	50.2	0.89	6
8	-	-	-	53.4	0.00	1	53.4	0.00	1
Total			118			70			188

Table 13. Walleye pollock maturity frequency by haul. G.B. REED, February 7-28, 1983.

Set no. Gonad maturity stage	1			2			3			4		
	M	F	T	M	F	T	M	F	T	M	F	T
I1	-	-	-	-	-	-	-	-	-	-	-	-
I2	-	-	-	-	-	-	-	-	-	-	-	-
R1	-	-	-	1	1	2	-	-	-	-	-	-
R2	11	5	16	5	6	11	23	8	31	1	-	1
R	-	4	4	-	-	-	-	-	-	-	-	-
1R	-	-	-	-	-	-	-	-	-	-	-	-
2R	-	-	-	-	-	-	-	-	-	-	-	-
RR	-	-	-	-	-	-	-	-	-	-	-	-
S	-	-	-	-	-	-	-	-	-	-	-	-
Rb	-	-	-	-	-	-	-	-	-	-	-	-
Rc	-	-	-	-	-	-	-	-	-	-	-	-
Rt	-	-	-	-	-	-	-	-	-	-	-	-
Total	11	9	20	6	7	13	23	8	31	1	0	1

Table 13 (cont'd)

Set no. Gonad maturity stage	5			6			7			8		
	M	F	T	M	F	T	M	F	T	M	F	T
I1	-	1	1	1	1	2	2	2	4	-	-	-
I2	-	0	0	0	0	0	8	12	20	2	3	5
R1	-	0	0	1	0	1	56	10	66	69	5	74
R2	-	1	1	22	17	39	65	53	118	24	24	48
R	-	-	-	-	-	-	-	-	-	-	-	-
1R	-	-	-	-	-	-	-	-	-	-	-	-
2R	-	-	-	-	-	-	-	-	-	-	-	-
RR	-	-	-	-	-	-	-	-	-	-	-	-
S	-	-	-	-	-	-	-	-	-	-	-	-
Rb	-	-	-	-	-	-	-	-	-	-	-	-
Rc	-	-	-	-	-	-	-	-	-	-	-	-
Rt	-	-	-	-	-	-	-	-	-	-	-	-
Total	0	2	2	24	18	42	131	77	208	95	32	127

Set no. Gonad maturity stage	9			10			11			12		
	M	F	T	M	F	T	M	F	T	M	F	T
I1	-	-	-	-	-	-	-	2	2	-	-	-
I2	-	-	-	1	1	2	10	3	13	-	-	-
R1	6	1	7	1	0	1	23	2	25	-	-	-
R2	62	52	114	9	20	29	84	39	123	14	3	17
R	-	-	-	-	-	-	3	20	23	-	2	2
1R	-	-	-	-	-	-	-	0	0	-	-	-
2R	-	-	-	-	-	-	-	1	1	-	-	-
RR	-	-	-	-	-	-	-	-	-	-	-	-
S	-	-	-	-	-	-	-	-	-	-	-	-
Rb	-	-	-	-	-	-	-	-	-	-	-	-
Rc	-	-	-	-	-	-	-	-	-	-	-	-
Rt	-	-	-	-	-	-	-	-	-	-	-	-
Total	68	53	121	11	21	32	120	67	187	14	5	19

Table 13 (cont'd)

Set no.	13			14			15			16		
Gonad maturity stage	M	F	T	M	F	T	M	F	T	M	F	T
I1	-	-	-	-	-	-	-	-	-	-	-	-
I2	4	7	11	-	-	-	-	-	-	-	-	-
R1	18	4	22	1	1	2	1	-	1	-	-	-
R2	13	19	32	7	7	14	6	1	7	10	3	13
R	1	6	7	-	-	-	-	-	-	-	-	-
1R	-	-	-	-	-	-	-	-	-	-	-	-
2R	-	-	-	-	-	-	-	-	-	-	-	-
RR	-	-	-	-	-	-	-	-	-	-	-	-
S	-	-	-	-	-	-	-	-	-	-	-	-
Rb	-	-	-	-	-	-	-	-	-	-	-	-
Rc	-	-	-	-	-	-	-	-	-	-	-	-
Rt	-	-	-	-	-	-	-	-	-	-	-	-
Total	36	36	72	8	8	16	7	1	8	10	3	13

Set no.	18			19			20			21		
Gonad maturity stage	M	F	T	M	F	T	M	F	T	M	F	T
I1	-	-	-	-	-	-	2	22	24	-	18	18
I2	-	1	1	1	1	2	31	0	31	37	9	46
R1	6	6	12	1	1	2	8	5	13	7	5	12
R2	8	8	16	39	14	53	6	2	8	2	-	2
R	-	-	-	-	5	5	-	-	-	-	-	-
1R	-	-	-	-	-	-	-	-	-	-	-	-
2R	-	-	-	-	-	-	-	-	-	-	-	-
RR	-	-	-	-	-	-	-	-	-	-	-	-
S	-	-	-	-	-	-	-	-	-	-	-	-
Rb	-	-	-	-	-	-	-	-	-	-	-	-
Rc	-	-	-	-	-	-	-	-	-	-	-	-
Rt	-	-	-	-	-	-	-	-	-	-	-	-
Total	14	15	29	41	21	62	47	29	76	46	32	78

Table 13 (cont'd)

Set no. Gonad maturity stage	22			25			28			32		
	M	F	T	M	F	T	M	F	T	M	F	T
I1	-	19	19	-	1	1	2	1	3	2	3	5
I2	17	1	18	1	0	1	0	0	0	0	1	1
R1	7	2	9	1	2	3	5	2	7	0	3	3
R2	2	5	7	1	1	2	2	1	3	5	3	8
R	-	-	-	-	1	1	-	2	2	5	-	5
1R	-	-	-	-	-	-	-	-	-	-	-	-
2R	-	-	-	-	-	-	-	-	-	-	-	-
RR	-	-	-	-	-	-	-	-	-	-	-	-
S	-	-	-	-	-	-	-	-	-	-	-	-
Rb	-	-	-	-	-	-	-	-	-	-	-	-
Rc	-	-	-	-	-	-	-	-	-	-	-	-
Rt	-	-	-	-	-	-	-	-	-	-	-	-
Total	26	27	53	3	5	8	9	6	15	12	10	22

Set no. Gonad maturity stage	36			38			39			40		
	M	F	T	M	F	T	M	F	T	M	F	T
I1	1	-	1	-	1	1	-	-	-	-	-	-
I2	0	-	0	-	0	0	-	-	-	-	-	-
R1	1	-	1	-	0	0	-	3	3	-	1	1
R2	3	4	7	2	1	3	9	16	25	3	6	9
R	6	-	6	2	-	2	3	3	6	1	1	2
1R	-	-	-	-	-	-	-	-	-	-	-	-
2R	-	-	-	-	-	-	-	-	-	-	-	-
RR	-	-	-	-	-	-	-	-	-	-	-	-
S	-	-	-	-	-	-	-	-	-	-	-	-
Rb	-	-	-	-	-	-	-	-	-	-	-	-
Rc	-	-	-	-	-	-	-	-	-	-	-	-
Rt	-	-	-	-	-	-	-	-	-	-	-	-
Total	11	4	15	4	2	6	12	22	34	4	8	12

Table 13 (cont'd)

Set no. Gonad maturity stage	41			42			43			44		
	M	F	T	M	F	T	M	F	T	M	F	T
I1	-	-	-	-	-	-	-	-	-	-	-	-
I2	-	-	-	-	-	-	-	-	-	1	-	1
R1	-	-	-	-	1	1	1	-	1	0	6	6
R2	1	1	2	3	-	3	-	1	1	4	7	11
R	-	-	-	-	-	-	-	-	-	4	-	4
1R	-	-	-	-	-	-	-	-	-	-	-	-
2R	-	-	-	-	-	-	-	-	-	-	-	-
RR	-	-	-	-	-	-	-	-	-	-	-	-
S	-	-	-	-	-	-	-	-	-	-	-	-
Rb	-	-	-	-	-	-	-	-	-	-	-	-
Rc	-	-	-	-	-	-	-	-	-	-	-	-
Rt	-	-	-	-	-	-	-	-	-	-	-	-
Total	1	1	2	3	1	4	1	1	2	9	13	22

Set no. Gonad maturity stage	45			46			47			48		
	M	F	T	M	F	T	M	F	T	M	F	T
I1	-	-	-	-	-	-	-	-	-	-	-	-
I2	-	-	-	-	-	-	-	-	-	-	-	-
R1	-	1	1	-	-	-	-	3	3	-	2	2
R2	2	4	6	1	-	1	2	1	3	3	1	4
R	1	1	2	1	1	2	10	1	11	6	-	6
1R	0	0	0	-	-	-	0	-	0	-	-	-
2R	0	0	0	-	-	-	0	-	0	-	-	-
RR	1	0	1	-	-	-	0	-	0	-	-	-
S	-	1	1	-	-	-	4	-	4	-	-	-
Rb	-	-	-	-	-	-	-	-	-	-	-	-
Rc	-	-	-	-	-	-	-	-	-	-	-	-
Rt	-	-	-	-	-	-	-	-	-	-	-	-
Total	4	7	11	2	1	3	16	5	21	9	3	12

Table 13 (cont'd)

Set no. Gonad maturity stage	49			51			52			53		
	M	F	T	M	F	T	M	F	T	M	F	T
I1	-	-	-	-	-	-	-	-	-	-	-	-
I2	-	-	-	-	-	-	-	-	-	1	-	1
R1	-	1	1	1	4	5	-	6	6	0	8	8
R2	2	1	3	-	1	1	2	3	5	16	34	50
R	-	-	-	-	-	-	8	-	8	61	4	65
1R	-	-	-	-	-	-	-	-	-	0	3	3
2R	-	-	-	-	-	-	-	-	-	0	-	0
RR	-	-	-	-	-	-	-	-	-	16	-	16
S	-	-	-	-	-	-	-	-	-	-	-	-
Rb	-	-	-	-	-	-	-	-	-	-	-	-
Rc	-	-	-	-	-	-	-	-	-	-	-	-
Rt	-	-	-	-	-	-	-	-	-	-	-	-
Total	2	2	4	1	5	6	10	9	19	94	49	143

Set no. Gonad maturity stage	54			55			Total		
	M	F	T	M	F	T	M	F	T
I1	1	-	1	-	-	-	11	71	82
I2	0	-	0	-	-	-	114	39	153
R1	2	2	4	1	1	2	218	89	307
R2	12	17	29	17	9	26	503	399	902
R	7	5	12	44	2	46	163	58	221
1R	0	1	1	0	3	3	0	7	7
2R	0	0	0	0	1	1	0	2	2
RR	2	0	2	4	-	4	23	0	23
S	-	0	0	-	-	-	4	1	5
Rb	-	0	0	-	-	-	-	0	0
Rc	-	0	0	-	-	-	-	0	0
Rt	-	1	1	-	-	-	-	1	1
Total	24	26	50	66	16	82	1036	667	1703

Table 14. Walleye pollock maturity frequency by haul. G.B. REED, April 18-24, 1983.

Set no.	1			2			3			4		
Gonad maturity stage	M	F	T	M	F	T	M	F	T	M	F	T
I1	-	1	1	-	-	-	-	2	2	-	1	1
I2	1	0	1	1	-	1	-	0	0	3	3	6
R1	0	0	0	0	-	0	-	0	0	0	0	0
R2	0	1	1	0	-	0	-	0	0	0	0	0
R	0	-	0	0	1	1	-	0	0	8	2	10
1R	0	-	0	0	0	0	-	0	0	0	0	0
2R	0	-	0	0	0	0	-	0	0	0	4	4
RR	3	-	3	0	0	0	-	0	0	7	1	8
S	1	-	1	2	0	2	1	0	1	6	1	7
Rb	0	-	0	0	0	0	0	0	0	0	-	0
Rc	0	-	0	1	1	2	2	1	3	19	-	19
Rt	1	-	1	3	2	5	-	-	-	14	-	14
Total	6	2	8	7	4	11	3	3	6	57	12	69

Set no.	5			6			8			9		
Gonad maturity stage	M	F	T	M	F	T	M	F	T	M	F	T
I1	-	-	-	-	-	-	-	-	-	-	-	-
I2	1	-	1	-	-	-	-	1	1	-	-	-
R1	0	-	0	-	-	-	-	0	0	-	-	-
R2	0	-	0	-	-	-	-	0	0	-	-	-
R	6	-	6	-	-	-	-	1	1	-	1	1
1R	0	-	0	-	-	-	-	1	1	-	0	0
2R	0	2	2	-	-	-	-	0	0	-	1	1
RR	0	0	0	-	-	-	-	0	0	-	0	0
S	5	11	16	1	-	1	1	0	1	-	0	0
Rb	0	0	0	0	-	0	0	0	0	-	0	0
Rc	33	8	41	2	1	3	2	1	3	1	0	1
Rt	96	40	136	2	-	2	6	8	14	3	2	5
Total	141	61	202	5	1	6	9	12	21	4	4	8

Table 14 (cont'd)

Set no. Gonad maturity stage	10			11			14			15		
	M	F	T	M	F	T	M	F	T	M	F	T
I1	-	-	-	-	-	-	-	-	-	-	-	-
I2	-	-	-	-	-	-	1	-	1	-	-	-
R1	-	-	-	-	-	-	0	-	0	-	-	-
R2	-	-	-	-	-	-	0	-	0	-	-	-
R	-	1	1	-	1	1	0	1	1	-	-	-
1R	-	0	0	-	0	0	0	0	0	-	-	-
2R	-	0	0	-	0	0	0	0	0	-	-	-
RR	1	0	1	-	0	0	0	0	0	-	-	-
S	2	0	2	1	0	1	1	1	2	2	-	2
Rb	0	0	0	0	0	0	0	0	0	0	-	0
Rc	3	0	3	23	0	23	2	1	3	3	-	3
Rt	1	3	4	65	84	149	-	-	-	1	-	1
Total	7	4	11	89	85	174	4	3	7	6	0	6

Set no. Gonad maturity stage	16			17			18			19		
	M	F	T	M	F	T	M	F	T	M	F	T
I1	-	-	-	-	-	-	-	-	-	-	-	-
I2	-	-	-	-	1	1	-	-	-	-	-	-
R1	-	-	-	-	0	0	-	-	-	-	-	-
R2	-	-	-	-	0	0	-	-	-	-	-	-
R	-	1	1	-	0	0	-	-	-	-	-	-
1R	-	0	0	-	0	0	-	-	-	-	-	-
2R	-	0	0	-	0	0	-	-	-	-	-	-
RR	-	0	0	-	0	0	-	-	-	-	-	-
S	2	0	2	2	0	2	-	-	-	-	-	-
Rb	0	0	0	0	0	0	-	-	-	-	-	-
Rc	2	1	3	4	1	5	4	-	4	1	-	1
Rt	-	1	1	1	-	1	3	1	4	2	-	2
Total	4	3	7	7	2	9	7	1	8	3	0	3

Table 14 (cont'd)

Set no. Gonad maturity stage	20			Total		
	M	F	T	M	F	T
I1	-	-	-	-	4	4
I2	-	-	-	7	5	12
R1	-	-	-	0	0	0
R2	-	-	-	0	1	1
R	-	-	-	14	9	23
1R	-	-	-	0	1	1
2R	-	-	-	0	7	7
RR	-	-	-	11	1	12
S	-	1	1	27	14	41
Rb	-	0	0	0	0	0
Rc	5	3	8	107	18	125
Rt	9	5	14	207	146	353
Total	14	9	23	373	206	579

Table 15. Walleye pollock stomach contents. G.B. REED, February 7-28, 1983.

	Gulf Islands	Open Strait	Total
Number examined	58	351	409
Number empty	15	104	119
Number everted	-	5	5
Food items	**Volume (cc)**	**Volume (cc)**	**Volume (cc)**
Fish remains (unid.)	6	8	14
Herring	10	-	10
Leuroglossus	-	5	5
Euphausiid	21	154	175
Amphipod	-	122	122
Shrimp	3	17	20
Glass shrimp	-	19	19
Digested matter	-	3	3
Squid	-	2	2
Annelid	-	1	1
Total	40	331	371

Table 16. Walleye pollock stomach contents. G.B. REED, April 18-24, 1983.

Number examined	303
Number empty	107
Number everted	5

Food items	Volume (cc)	%
Amphipod	209	57.7
Euphausiid	98	27.1
Shrimp	41	11.3
Digested matter	14	3.9
Total	362	

Table 17. Summary of spiny dogfish sampled. G.B. REED, February 7-28, 1983.

Set no.	Length M	Length F	Length T	Maturity	Stomach contents	Sampling remarks
1	5	1	6	-	-	T.C.[a]
2	1	2	3	-	-	T.C.
3	115	95	210	-	14	T.C.
4	8	4	12	-	-	T.C.
5	4	1	5	-	-	T.C.
6	31	26	57	-	54	T.C.
7	19	21	40	-	-	T.C.
9	4	5	9	-	-	T.C.
10	3	7	10	-	-	T.C.
11	14	9	23	-	-	T.C.
12	0	1	1	-	-	T.C.
13	78	56	134	-	-	T.C.
15	4	4	8	-	-	T.C.
16	18	8	26	-	-	T.C.
22	1	1	2	2	2	T.C.
25	4	3	7	7	-	T.C.
26	12	7	19	-	-	T.C.
28	2	3	5	-	-	T.C.
38	1	16	17	17	17	T.C.
41	13	13	26	26	26	T.C.
42	6	8	14	14	14	T.C.
43	24	18	42	42	42	T.C.
45	1	1	2	2	2	T.C.
46	63	63	126	126	126	T.C.
47	1	1	2	2	2	T.C.
48	8	6	14	14	14	T.C.
49	2	1	3	3	3	T.C.
53	1	5	6	-	6	T.C.
55	0	9	9	9	9	T.C.
Total	443	395	838	264	331	

[a] T.C. = Total catch sampled.

Table 18. Summary of spiny dogfish sampled. G.B. REED, April 18-24, 1983.

Set no.	Length			Maturity	Stomach contents	Sampling remarks
	M	F	T			
1	5	1	6	6	6	T.C.[a]
2	16	21	37	-	-	T.C.
3	8	13	21	-	-	T.C.
4	10	17	27	-	-	T.C.
5	185	173	357	-	-	T.C.
6	4	4	8	8	4	T.C.
7	17	10	27	27	27	T.C.
8	8	3	11	11	11	T.C.
9	19	10	30	-	-	T.C.
10	9	9	18	18	18	T.C.
11	46	47	93	-	-	T.C.
12	6	7	13	-	-	T.C.
13	87	71	162	-	-	T.C.
14	0	3	3	-	-	T.C.
15	0	2	3	-	-	T.C.
16	4	9	13	-	-	T.C.
17	0	7	7	-	-	T.C.
18	1	3	4	-	-	T.C.
19	3	1	4	-	-	T.C.
20	3	1	4	-	-	T.C.
Total	431	412	843	70	66	

[a] T.C. = Total catch sampled.

Table 19. Spiny dogfish maturity frequency by haul. G.B. REED, February 7-28, 1983.

Gonad maturity stage	Set number											
	22		25		38		41		42		43	
	M	F	M	F	M	F	M	F	M	F	M	F
I_1	-		4		-		13		6		24	
I_2	-		-		-		-		-		-	
R	1		-		1		-		-		-	
I_1D_1		-		3		5		13		7		17
I_1D_2		-		-		2		-		0		0
R_1D_1		-		-		1		-		0		0
R_1D_2		-		-		3		-		0		1
R_1D_5		-		-		0		-		0		-
R_2D_2		-		-		2		-		1		-
R_2D_3		-		-		2		-		-		-
R_2D_5		1		-		1		-		-		-
R_3D_6		-		-		-		-		-		-
Total	1	1	4	3	1	16	13	13	6	8	24	18
Net depth[a] (m)	75-84[b]		146-152[b]		187		183-192		183-192		229	

Table 19 (cont'd)

Gonad maturity stage	Set number													
	45		46		47		48		49		55		Total	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F
I_1	1		60		-		6		1		-		115	
I_2	-		3		-		0		0		-		3	
R	-		-		1		2		1		-		6	
I_1D		1		63		-		3		-		2		114
I_1D_2		-		-		-		1		-		0		3
R_1D_1		-		-		-		0		-		1		2
R_1D_2		-		-		-		0		-		1		5
R_1D_5		-		-		1		1		1		1		4
R_2D_2		-		-		-		0		-		0		3
R_2D_3		-		-		-		0		-		0		2
R_2D_5		-		-		-		0		-		0		2
R_3D_6		-		-		-		1		-		4		5
Total	1	1	63	63	1	1	8	6	2	1	0	9	124	140
Net depth[a] (m)	183-190		229		183-187		220		247		165			

[a] Depth of headline rope.

[b] Catches from sets 22 and 25 using on-bottom trawl.

Table 20. Spiny dogfish maturity frequency by haul. G.B. REED, April 18-24, 1983.

Gonad maturity stage	Set number											
	1		6		7		8		10		Total	
	M	F	M	F	M	F	M	F	M	F	M	F
I_1	5		4		9		7		8		33	
I_2	-		-		4		1		1		6	
R	-		-		3		-		-		3	
I_1D_1		-		3		8		3		6		20
I_1D_2		-		0		1		-		0		1
R_1D_5		-		1		1		-		1		3
R_2D_5		-		-		0		-		1		1
R_2D_6		1		-		0		-		1		2
R_3D_4		-		-		1		-		-		1
Total	5	1	4	4	16	11	8	3	9	9	42	28
Net depth[a] (m)	201		192		238		110		256			

[a] Depth of headline rope.

Table 21. Spiny dogfish stomach contents sampled in the open Strait. G.B. REED, February 7-28, 1983.

	Dogfish ≤60 cm (total length)	Dogfish >60 cm (total length)	Total
Number examined	287	42	329
Number empty	147	22	169
Food items	**Volume (cc)**	**Volume (cc)**	**Volume (cc)**
Hake	594	820	1414
Herring	0	400	400
Fish remains (unid.)	46	63	109
Pollock	0	50	50
Pacific cod	0	3	3
Leuroglossus	1	-	1
Squid	-	150	150
Octopus	34	5	39
Amphipod	11	0	11
Euphausiid	7	0	7
Shrimp	3	0	3
Digested matter	92	404	496
Total	788	1895	2683

Table 22. Spiny dogfish stomach contents. G.B. REED, April 18-24, 1983.

	Dogfish ≤60 cm (total length)	Dogfish >60 cm (total length)	Total
Number examined	44	22	66
Number empty	19	16	35
Food items	**Volume (cc)**	**Volume (cc)**	**Volume (cc)**
Fish remains (unid.)	-	530	530
Pollock	-	400	400
Hake	8	259	267
Squid	-	400	400
Amphipod	7	-	7
Euphausiid	2	-	2
Digested matter	11	-	11
Total	28	1589	1617

Table 23. Summary of species sampled, other than hake, pollock, and dogfish. G.B. REED, February 7-28, 1983.

Species	Set no.	length	Sex	Maturity	Sample remarks
Brown cat shark	1	1	1	-	T.C.
	5	1	1	-	T.C.
	13	23	23	-	T.C.
	41	7	7	-	T.C.
	43	8	8	-	T.C.
Chinook salmon	2	1	1	-	T.C.
English sole	23	178	-	-	Random 1 tub
	26	42	42	-	T.C.
	28	71	71	-	T.C.
	30	61	61	-	T.C.
	31	116	116	-	Random 1 tub
	34	290	290	-	T.C.
Flathead sole	27	27	-	-	T.C.
Pacific cod	15	1	1	-	T.C.
	20	1	1	-	T.C.
	21	25	25	25	T.C.
	22	13	13	13	T.C.
	23	49	49	-	T.C.
	26	2	2	-	T.C.
	28	5	5	-	T.C.
	33	8	-	-	T.C.
	34	46	-	-	T.C.
	35	11	-	-	T.C.
Pacific herring	22	98	98	-	T.C.
Pacific tomcod	20	17	17	-	T.C.
	33	33	-	-	T.C.
	34	121	-	-	T.C.
	35	123	-	-	T.C.
Rock sole	23	11	11	-	T.C.
	30	12	12	-	T.C.
	34	15	15	-	T.C.
Sablefish	21	3	3	3	T.C.
	23	7	7	7	T.C.
Slender sole	27	202	-	-	T.C.

Table 24. Summary of brown cat shark sampled. G.B. REED, April 18-24, 1983.

Set no.	Length M	Length F	Length T	Sample remarks
1	2	1	3	T.C.[a]
2	3	1	4	T.C.
3	3	1	4	T.C.
4	15	44	59	T.C.
6	2	1	3	T.C.
7	0	1	1	T.C.
10	0	1	1	T.C.
12	1	1	2	T.C.
14	4	1	5	T.C.
15	0	1	1	T.C.
16	3	2	5	T.C.
17	0	1	1	T.C.
18	5	3	8	T.C.
19	4	1	5	T.C.
Total	42	60	102	

[a] T.C. = Total catch sampled.

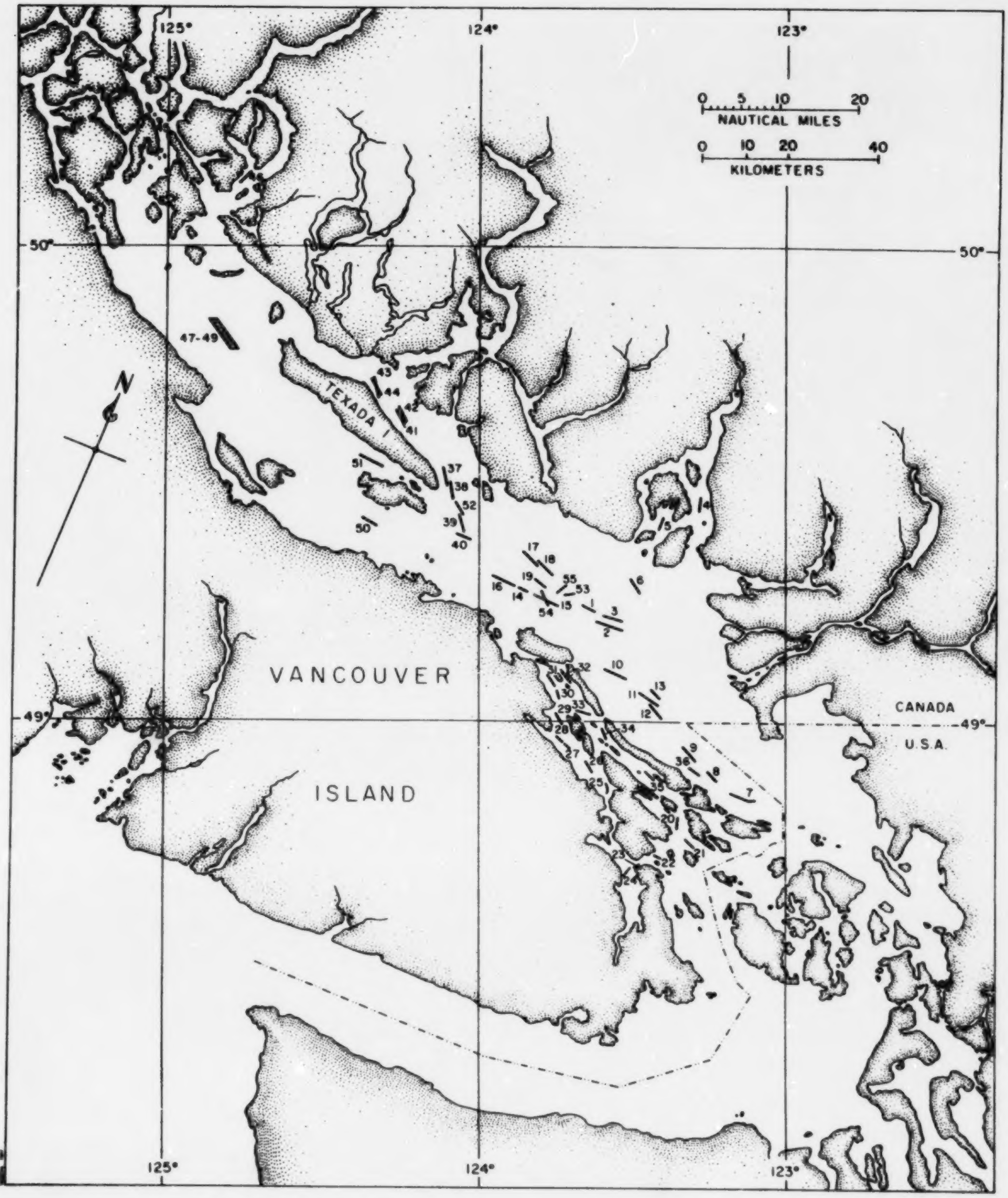

125°
124°
123°
50°
49°
NAUTICAL MILES
0 5 10 20
KILOMETERS
0 10 20 40
N
TEXADA I
VANCOUVER
ISLAND
CANADA
U.S.A.
47-49
43
44
42
41
51
37
38
52
39
40
50
17
18
19
55
53
16
14
54
15
1
3
2
6
4
5
10
11
13
12
32
31
30
29
33
28
34
27
26
25
36
9
8
7
35
20
21
22
23
24

Fig. 1. Set locations in the Strait of Georgia. G.B. REED, February 7-28, 1983. (Sets 20-35 are bottom trawl sets.)

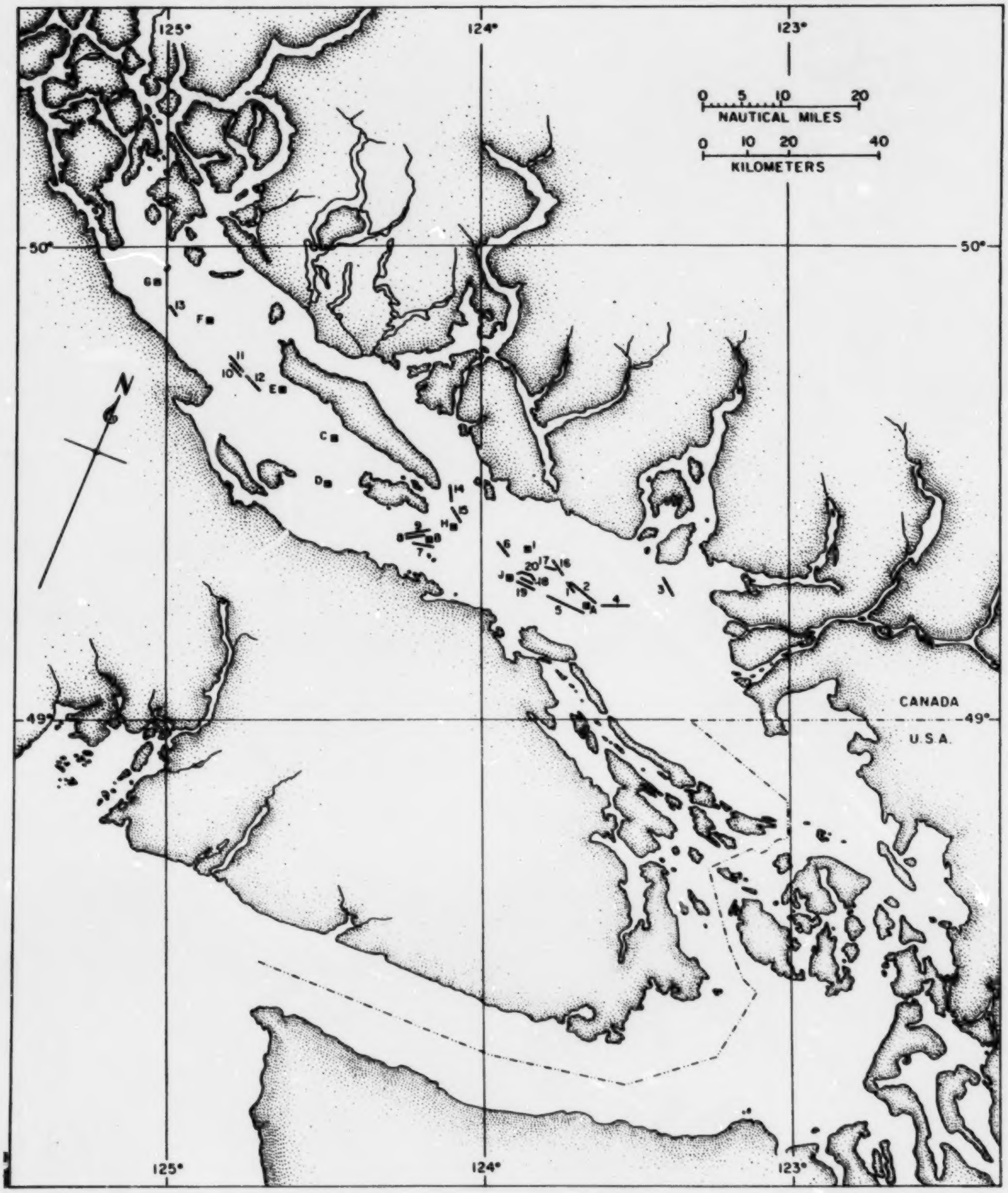

125°
124°
123°
0 5 10 20
NAUTICAL MILES
0 10 20 40
KILOMETERS
50°
50°
G
13
F
N
11
10
12
E
C
D
14
15
H
9
8
B
7
6
I
20
17
16
J
18
19
1
2
5
A
4
3
CANADA
49°
49°
U.S.A.
125°
124°
123°

Fig. 2. Set locations in the Strait of Georgia. G.B. REED, April 18-24, 1983. (XBT stations denoted by black square.)

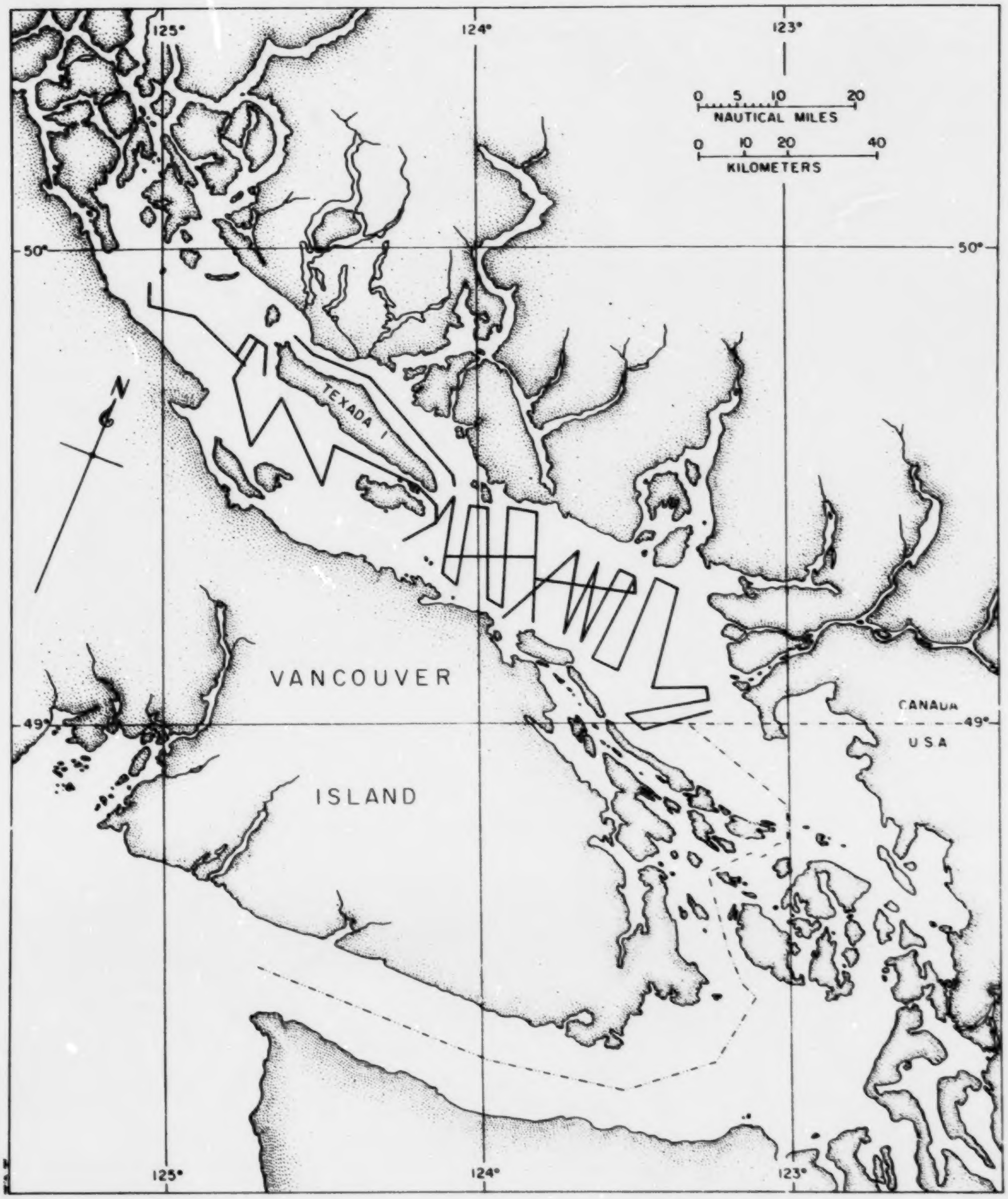

125°
124°
123°
0 5 10 20
NAUTICAL MILES
0 10 20 40
KILOMETERS
50°
50°
N
TEXADA I
VANCOUVER
ISLAND
CANADA
USA
49°
49°
125°
124°
123°

Fig. 3. Echo-sounding survey trackline travelled by the G.B. REED in the Strait of Georgia, April 18-24, 1983.

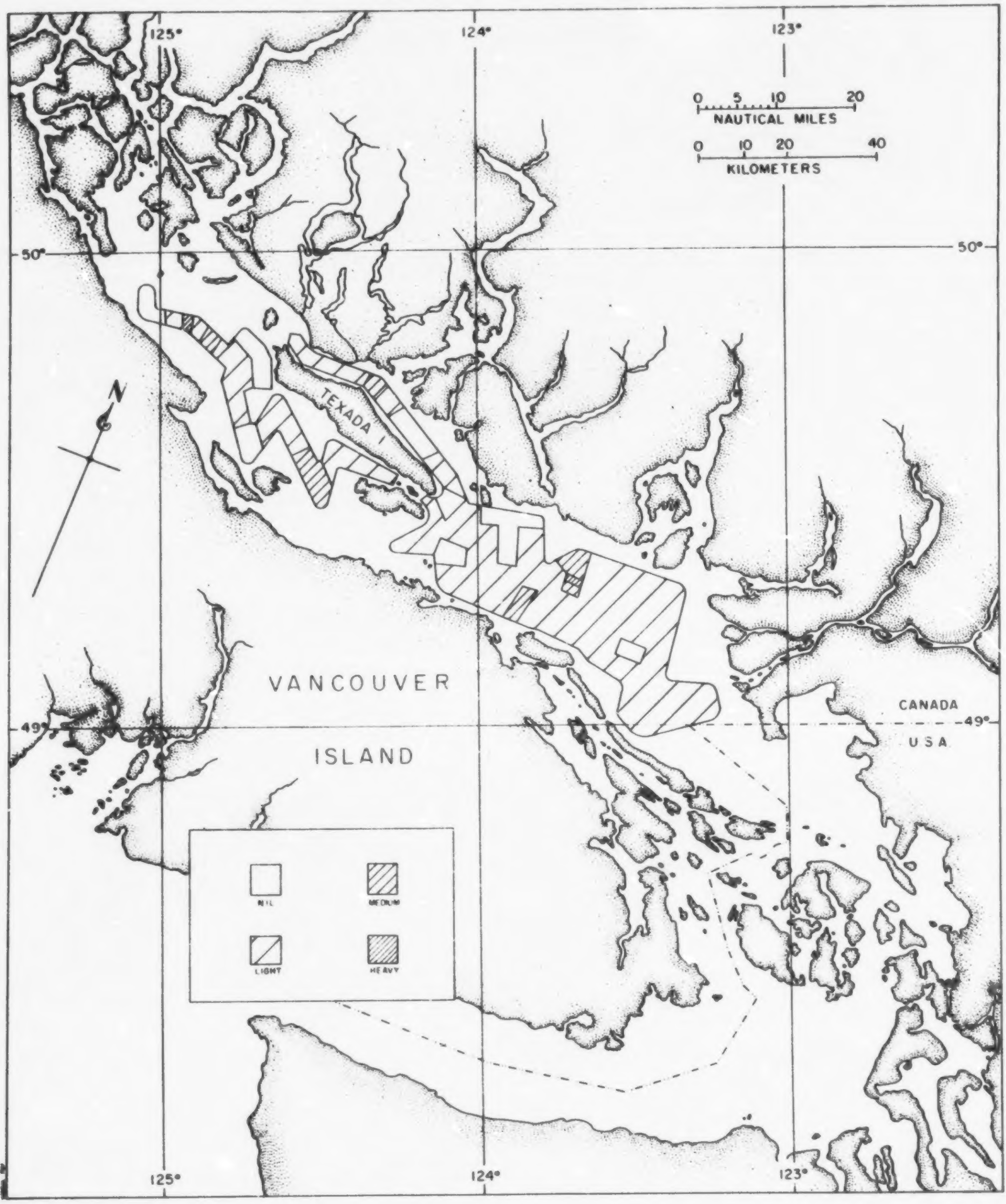

125°
124°
123°
0 5 10 20
NAUTICAL MILES
0 10 20 40
KILOMETERS
50°
N
TEXADA I.
VANCOUVER
ISLAND
CANADA
USA
49°
NIL
MEDIUM
LIGHT
HEAVY

Fig. 4. Fish distribution in the shallow spotting layer in the Strait of Georgia as represented by echogram estimates of volume density. April 18-24, 1983.

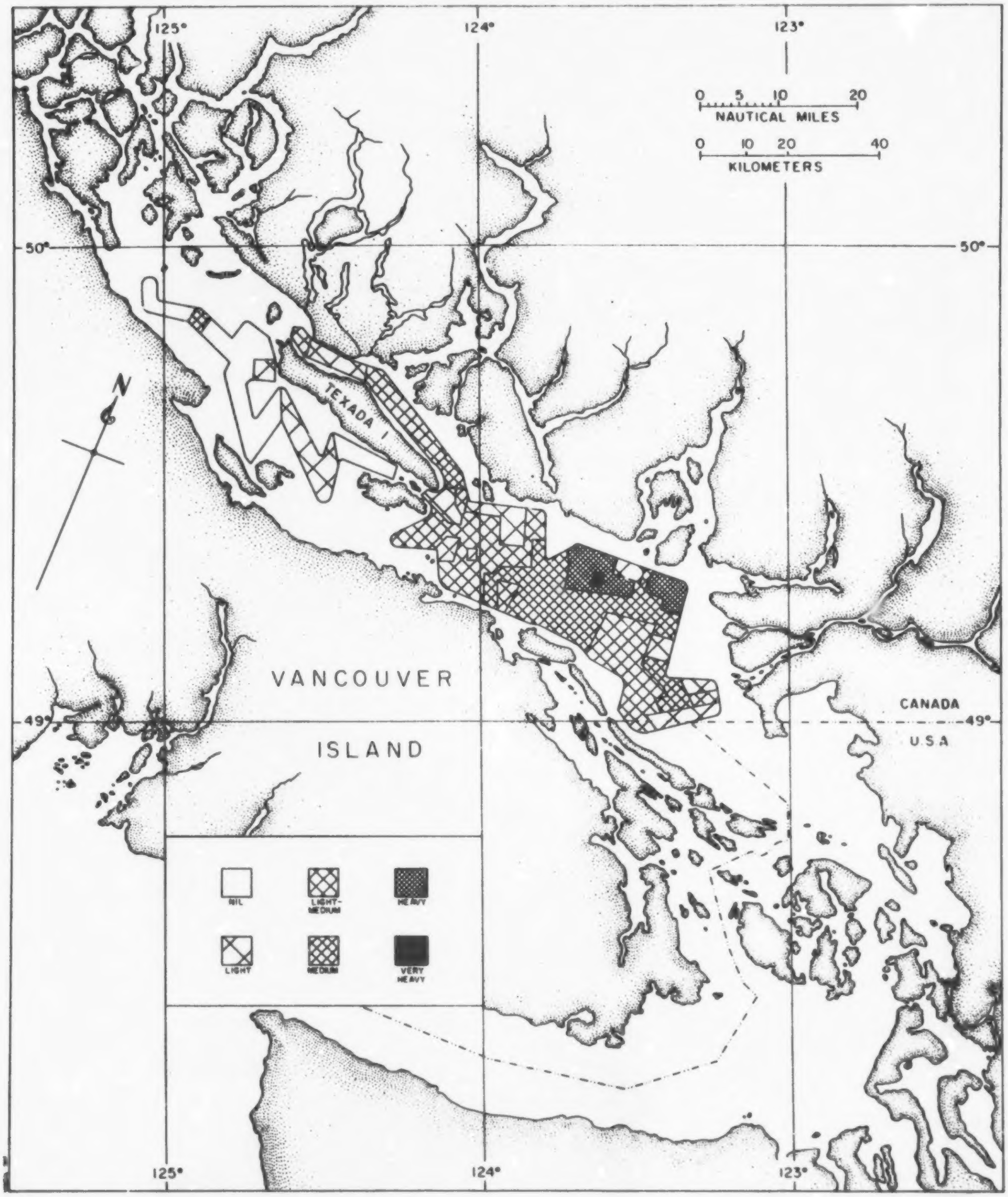

125°
124°
123°
0 5 10 20
NAUTICAL MILES
0 10 20 40
KILOMETERS
50°
50°
N
TEXADA I
VANCOUVER
ISLAND
CANADA
49°
49°
U.S.A.
NIL
LIGHT-MEDIUM
HEAVY
LIGHT
MEDIUM
VERY HEAVY
125°
124°
123°

Fig. 5. Fish distribution in the main concentration layer in the Strait of Georgia as represented by echogram estimates of volume density. April 18-24, 1983.

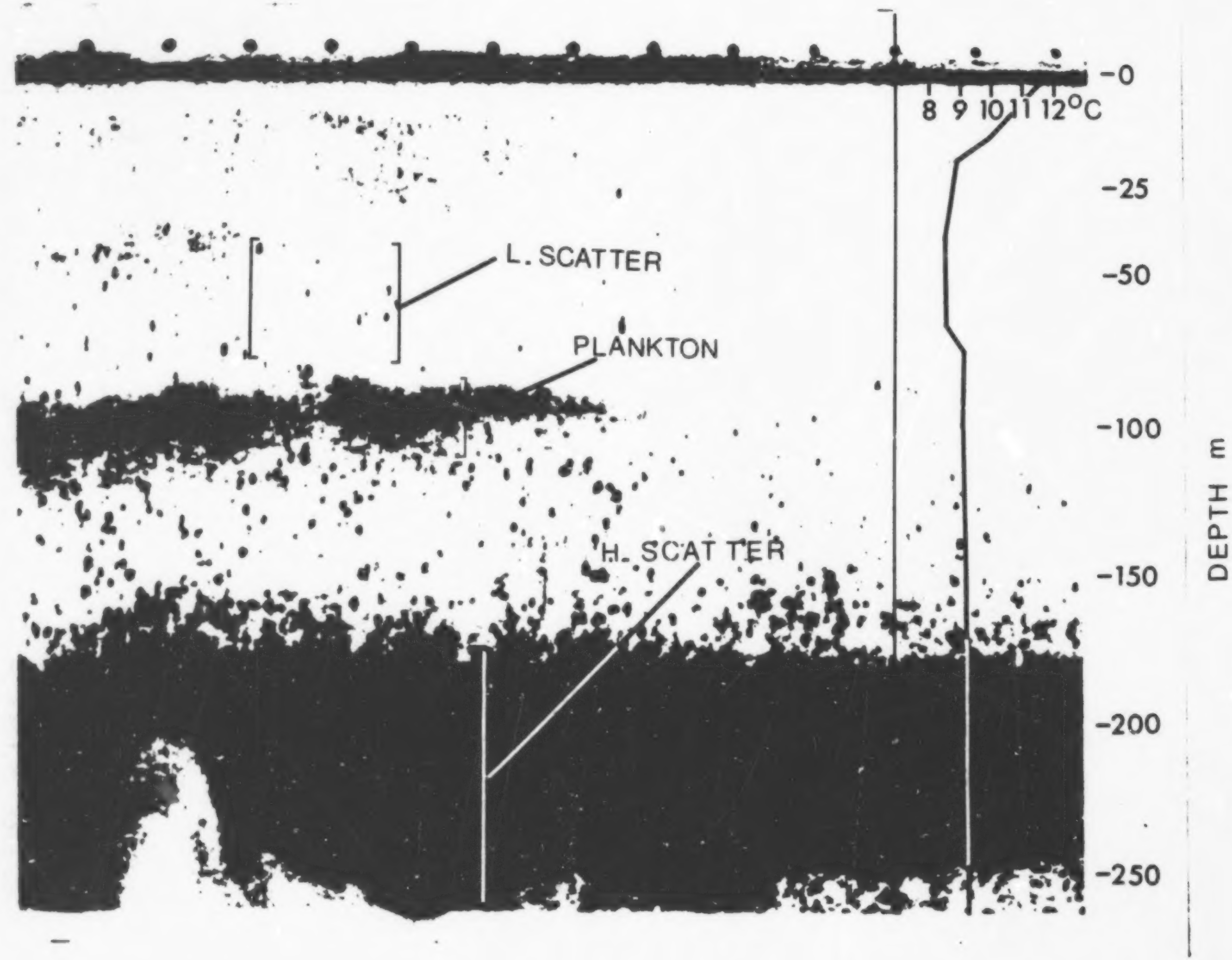


Fig. 6. Subjective estimates of fish volume density on Halibut Bank, defined from an echogram collected during February 1983 on the R/V G.B. REED. Scattering pattern L (light) and H (heavy), and plankton layer. The temperature profile of the fish distribution with depth on Halibut Bank is from XBT STN A.

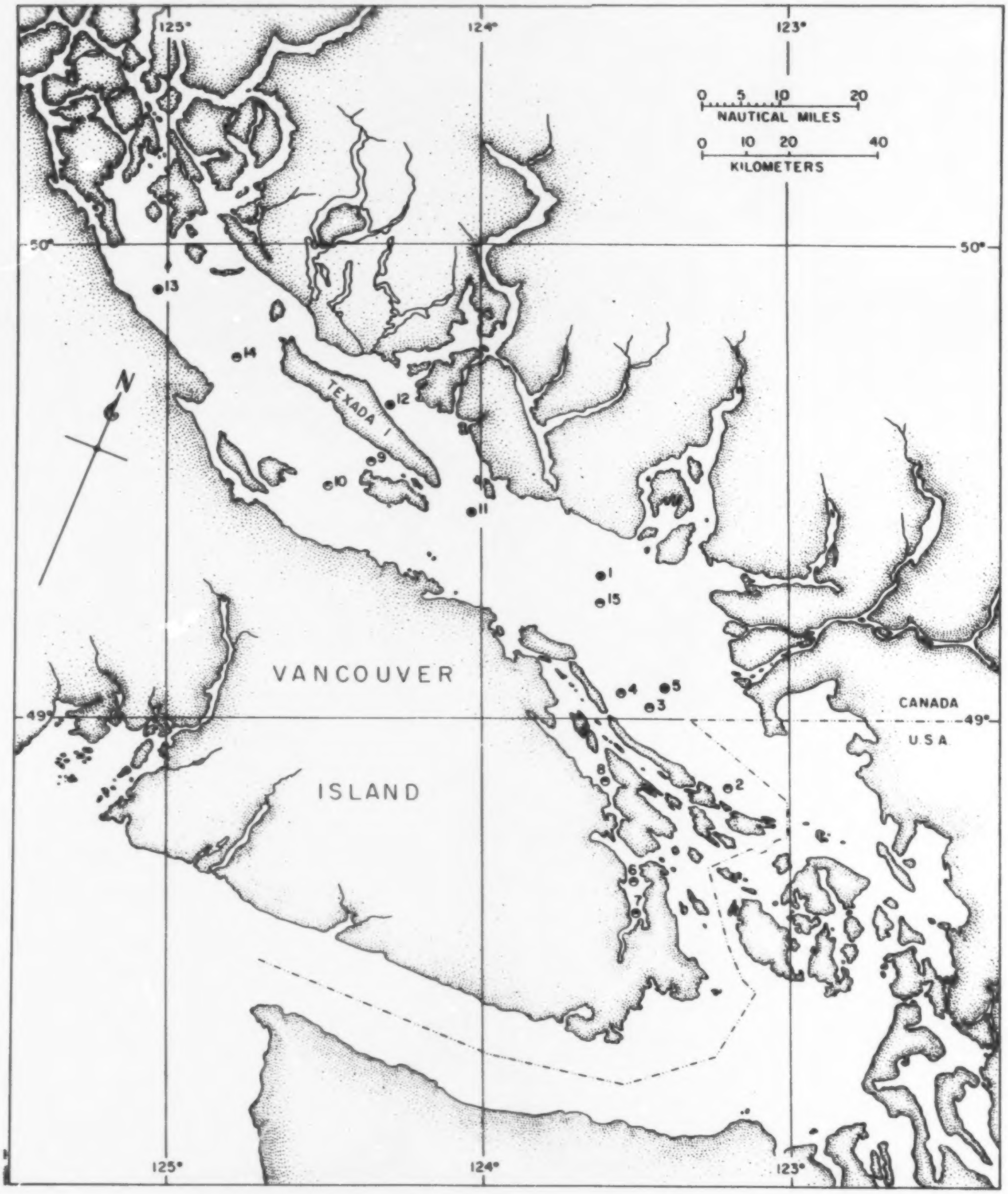

125°
124°
123°
0 5 10 20
NAUTICAL MILES
0 10 20 40
KILOMETERS
50°
50°
13
14
N
TEXADA I
12
8
9
10
11
1
15
VANCOUVER
ISLAND
4
5
3
CANADA
49°
49°
U.S.A.
8
2
6
7
125°
124°
123°

Fig. 7. Location of the benthic core samples taken in the Strait of Georgia using the Benthos cover. R/V G.B. REED, February 7-28, 1983. (Paired core samples denoted by black circle.)

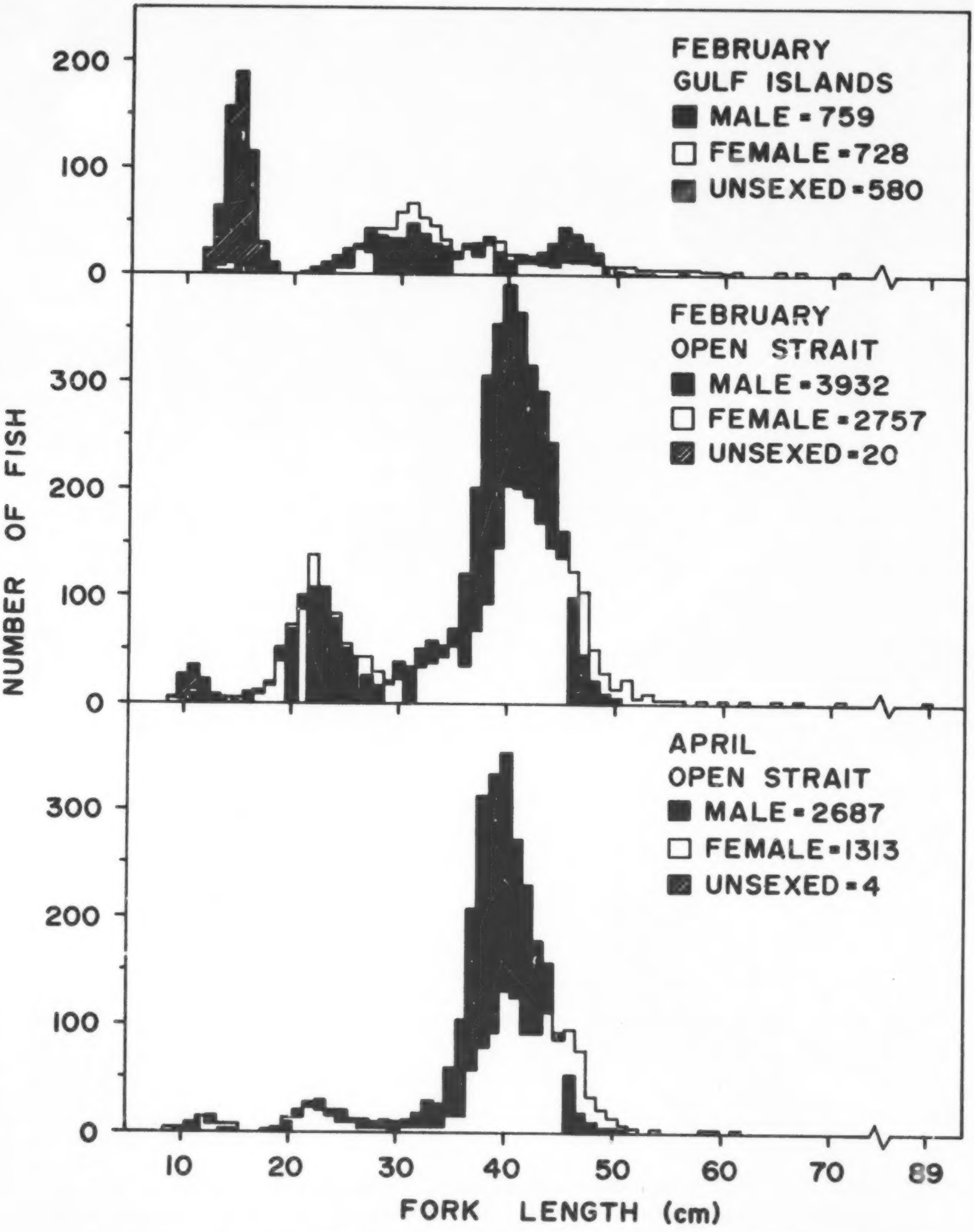


Fig. 8. Pacific hake length frequency by sex. R/V G.B. REED, February 7-28 and April 18-24, 1983.

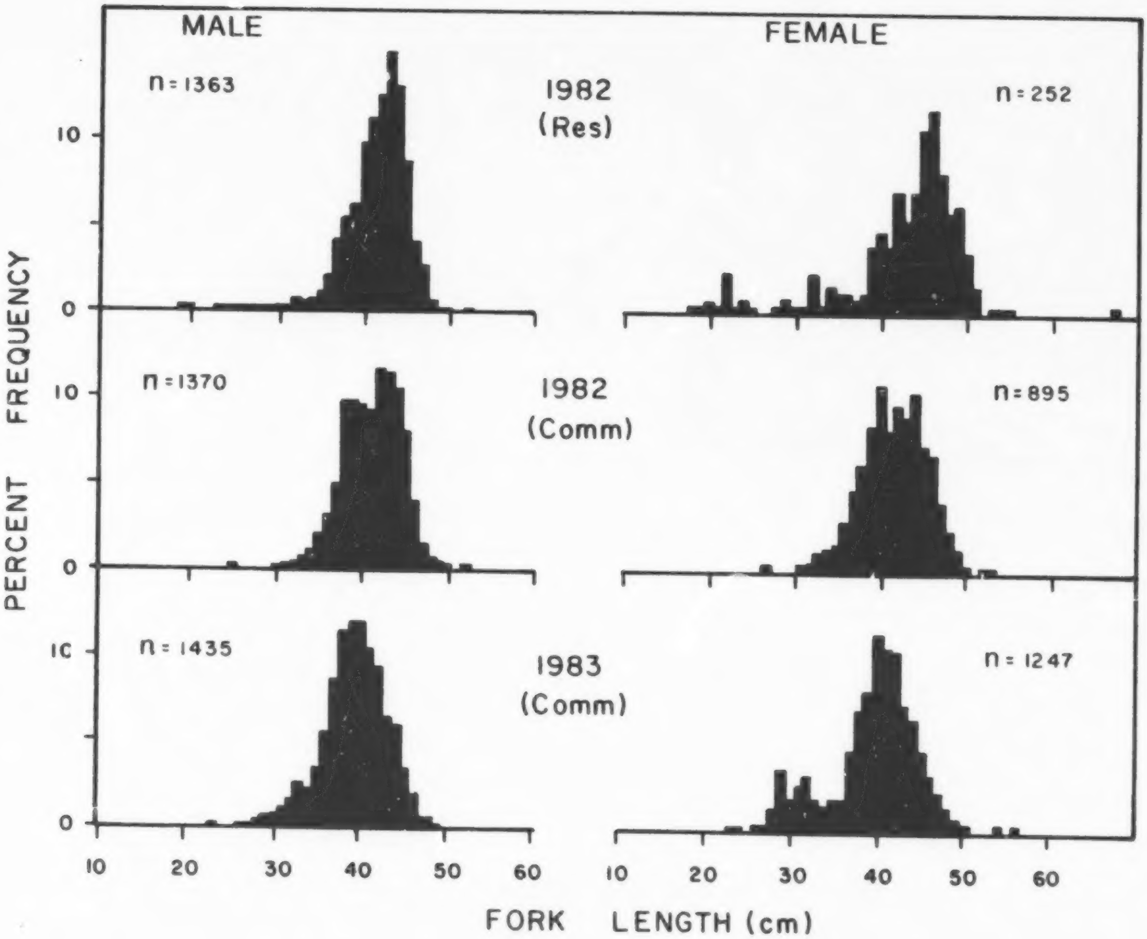
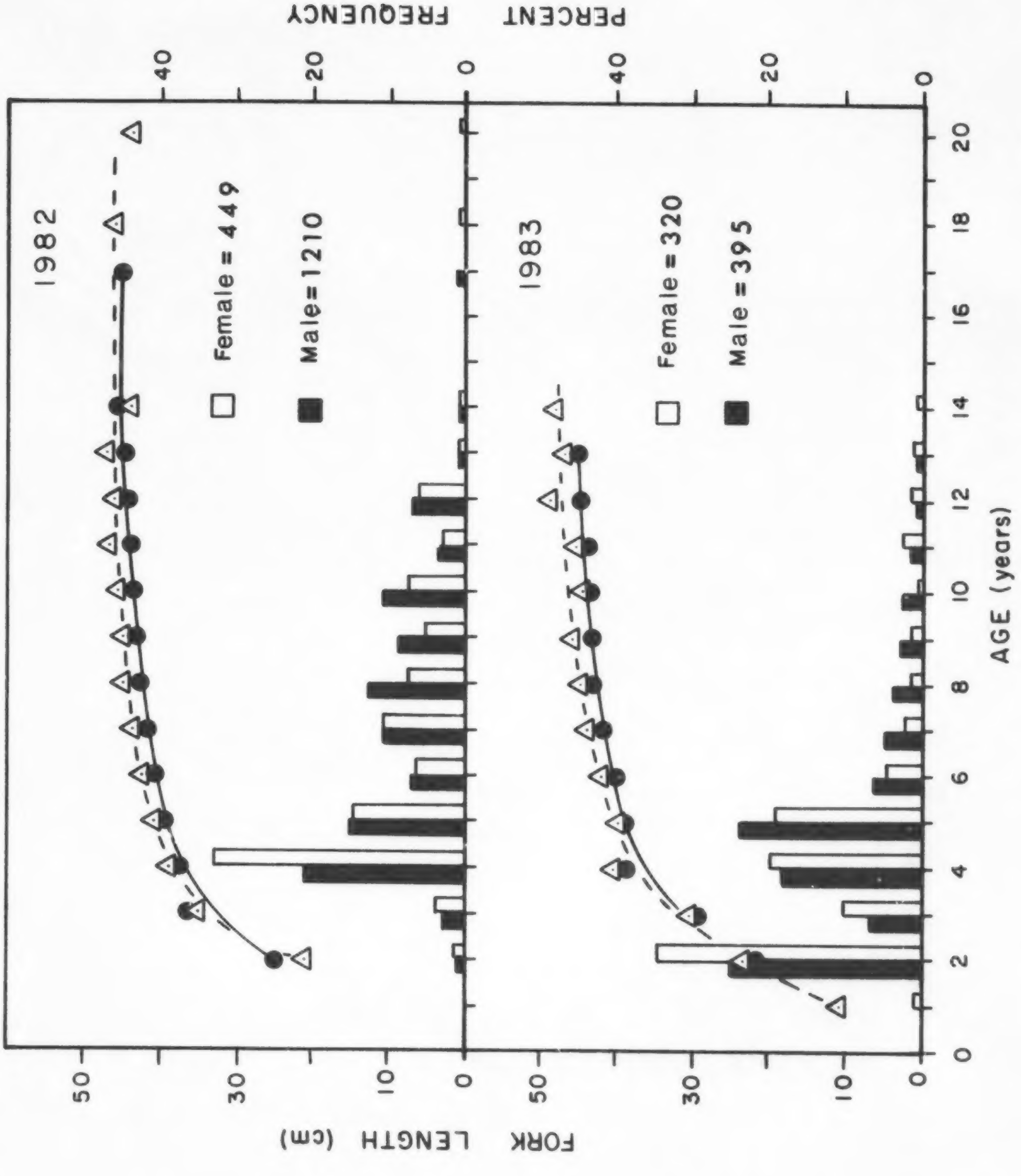


Fig. 9. Pacific hake length frequency by sex from 1982 research trips and commercial landings and from the 1983 commercial landings in the Strait of Georgia.

Fig. 10. Pacific hake age frequency and growth curves (fitted by eye) by sex sampled during 1982 (research and commercial) and 1983 from sets 14, 15 and 19, R/V G.B. REED, February 7-28, 1983.


1982
□ Female = 449
■ Male=1210
1983
□ Female = 320
■ Male = 395
FORK LENGTH (cm)
50
30
10
0
50
30
10
0
PERCENT FREQUENCY
40
20
0
40
20
0
AGE (years)
0
2
4
6
8
10
12
14
16
18
20

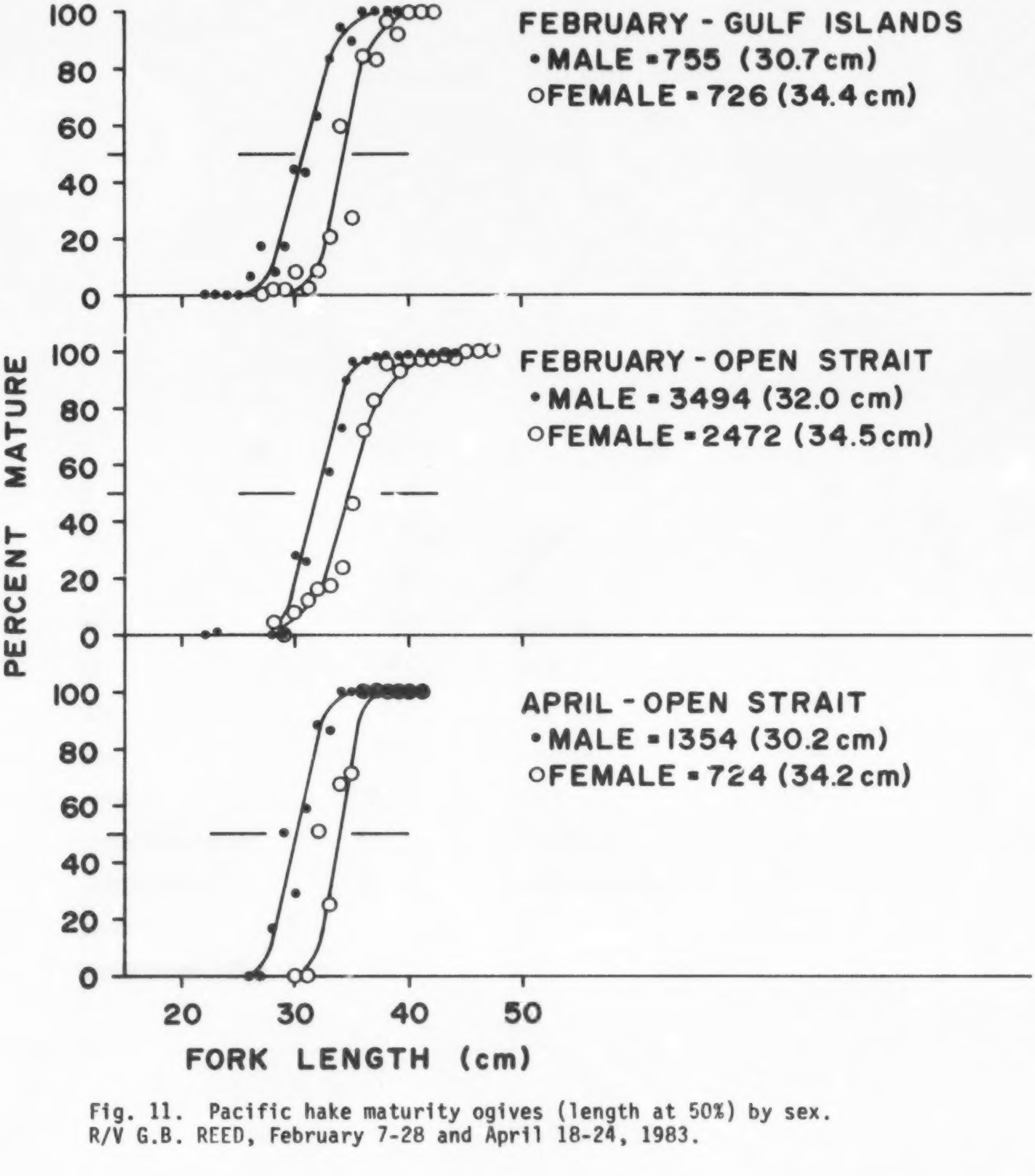


Fig. 11. Pacific hake maturity ogives (length at 50%) by sex. R/V G.B. REED, February 7-28 and April 18-24, 1983.

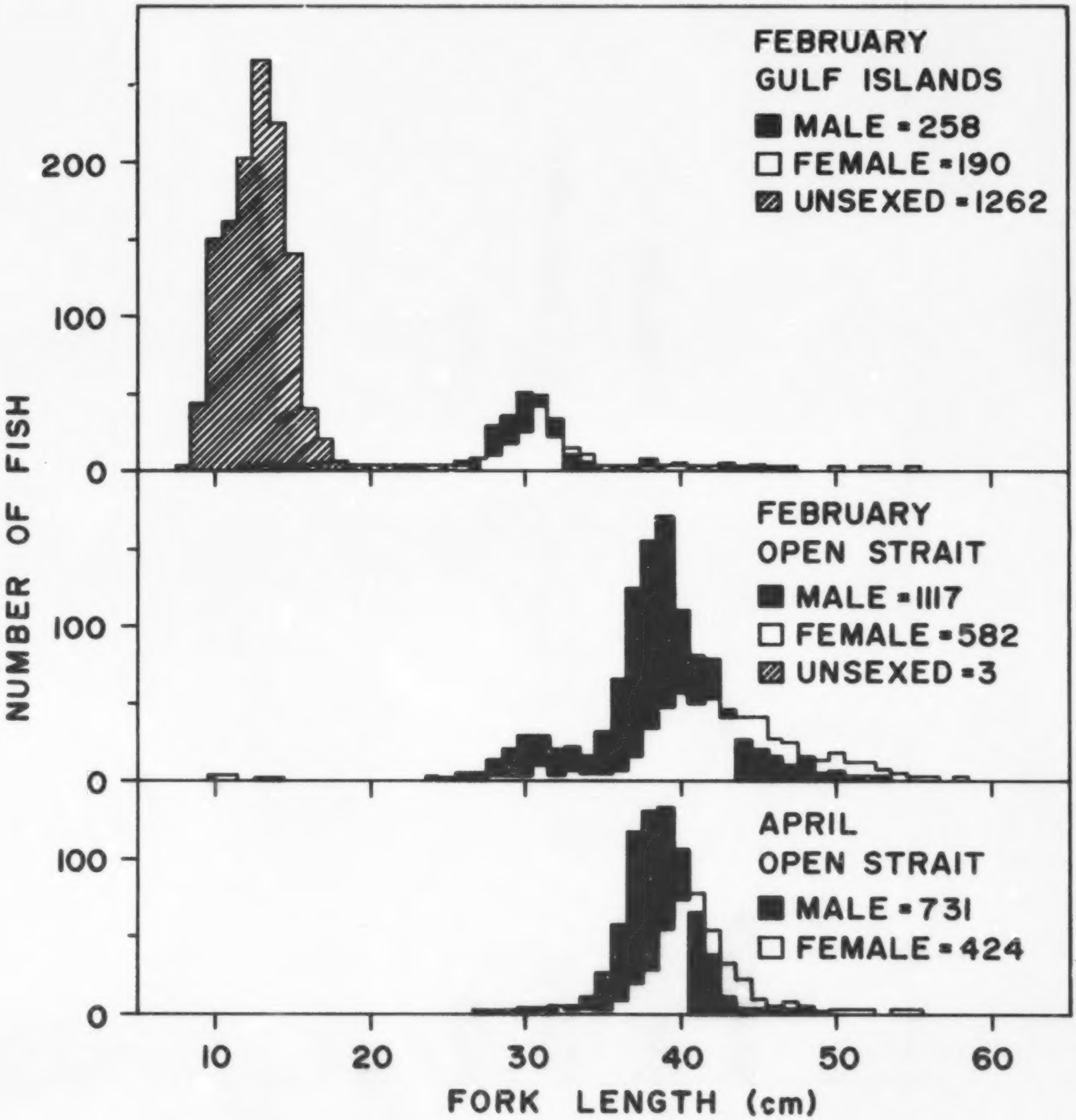


Fig. 12. Walleye pollock length frequency by sex. G.B. REED, February 7-28 and April 18-24, 1983.

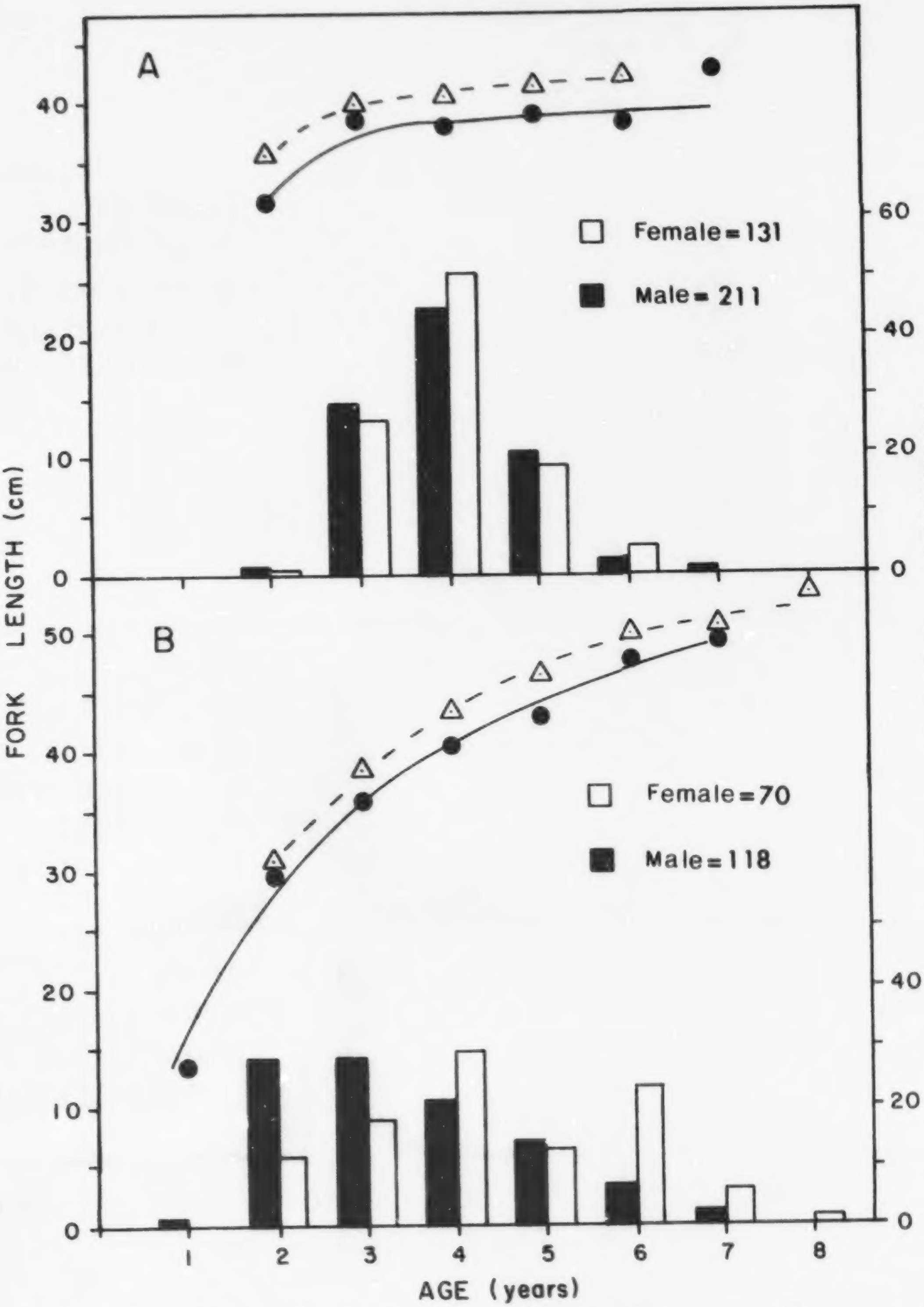


Fig. 13. Walleye pollock age frequency and growth curves (fitted by eye) by sex. R/V G.B. REED, February 7-28 and April 18-24, 1983.

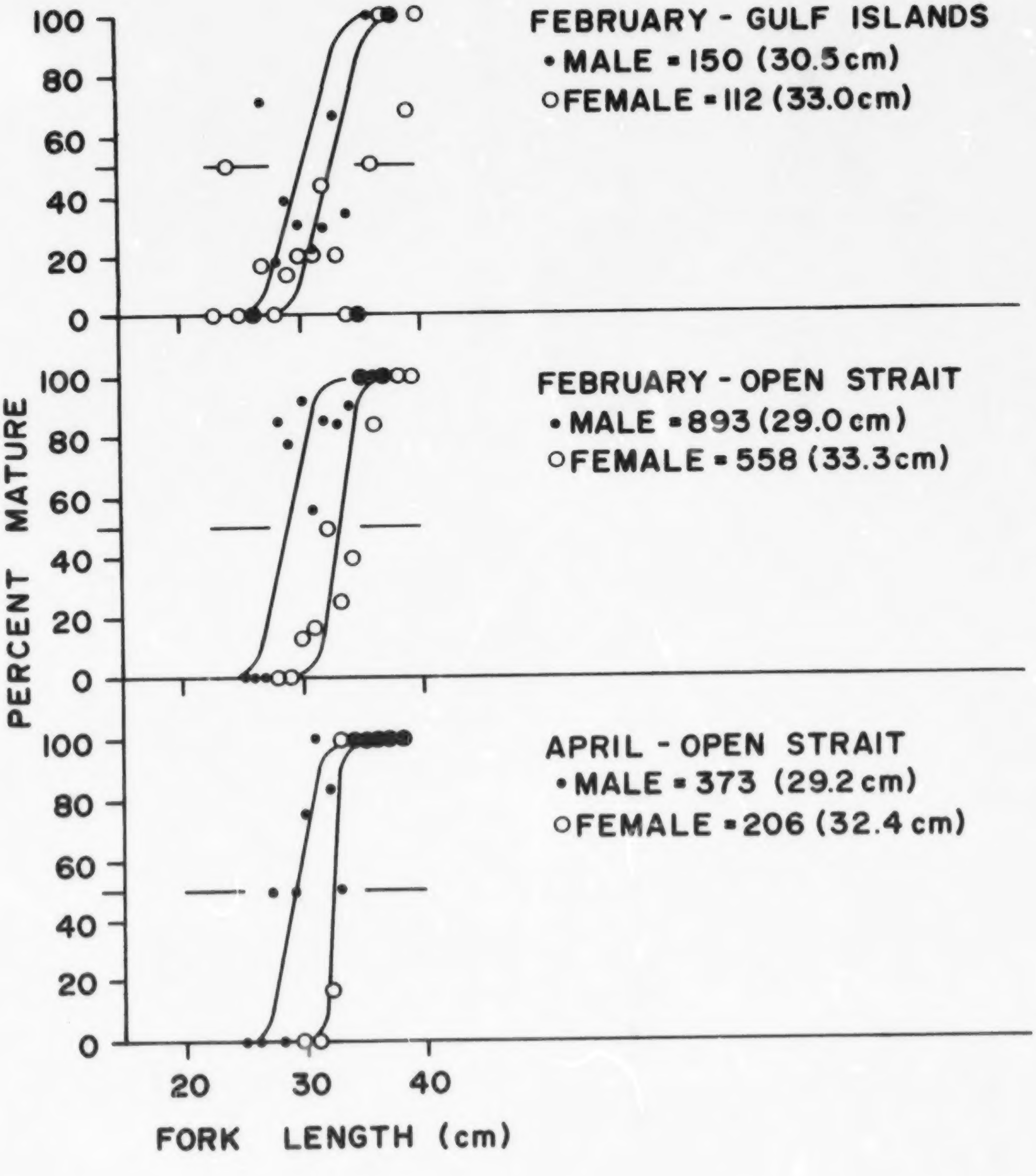


Fig. 14. Walleye pollock maturity ogives (length at 50%) by sex. R/V G.B. REED, February 7-28 and April 18-24, 1983.

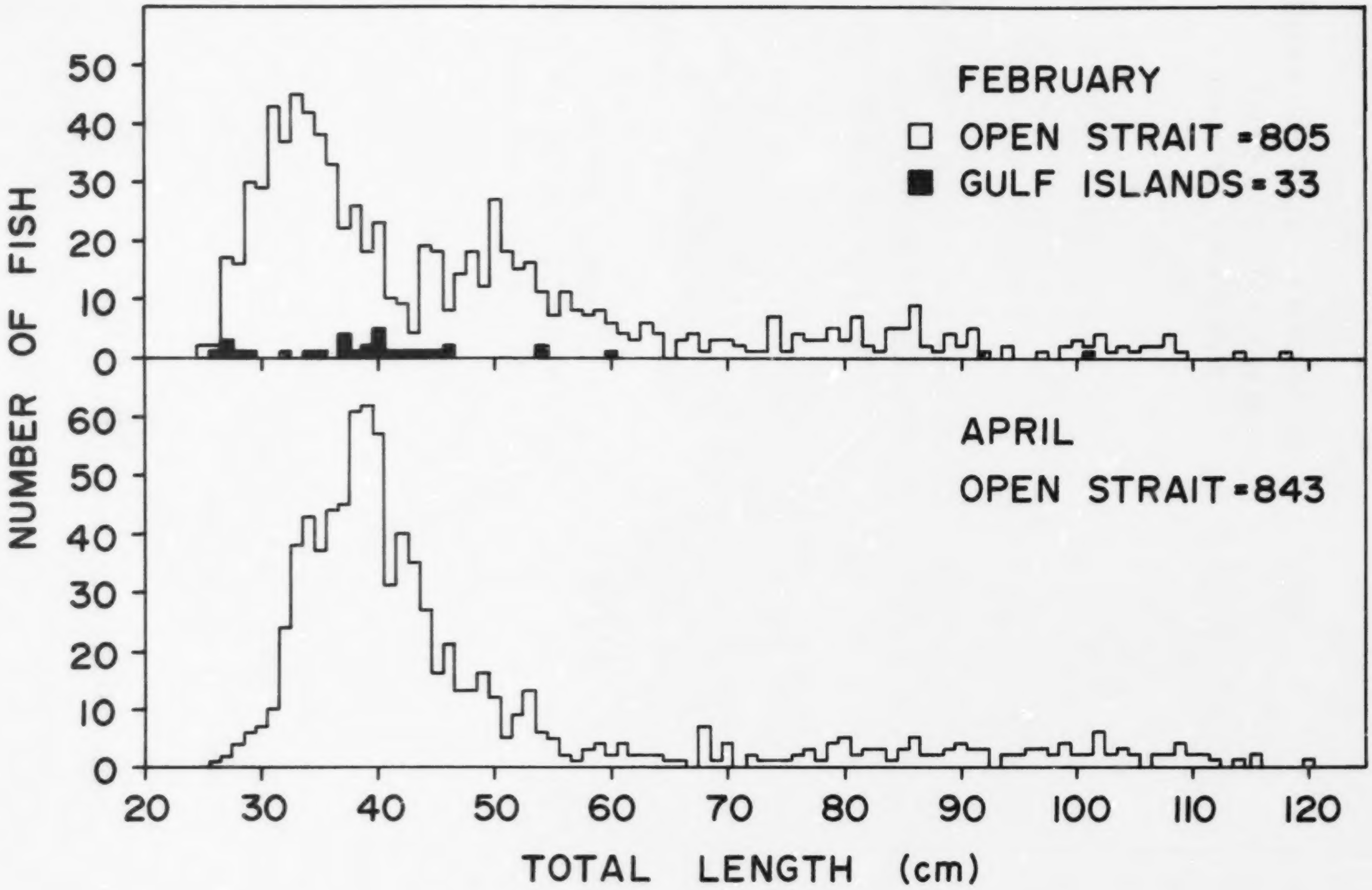


Fig. 15. Spiny dogfish length frequency. R/V G.B. REED, February 7-28 and April 18-24, 1983.

APPENDIX TABLE 1. FISHING LOG FOR R/V G.B. REED, IN THE STRAIT OF GEORGIA, FEBRUARY 7-28, 1983.

HAUL NUMBER		1	2	3	4
DATE		FEB 8	FEB 8	FEB 8	FEB 9
AREA (LOCALITY)		GABR I	GABR I	GABR I	S H SD
START TIME	(PST)	10:04	13:00	15:00	9:43
DURATION	(MIN)	40	60	40	30
START N. LAT.	(DEG)	49	49	49	49
	(MIN)	14.9	14.2	14.1	26.6
W. LONG	(DEG)	123	123	123	123
	(MIN)	37.5	38.4	36.0	17.5
FINISH N. LAT.	(DEG)	49	49	49	49
	(MIN)	15.9	12.9	13.3	28.3
W. LONG	(DEG)	123	123	123	123
	(MIN)	40.4	33.0	32.6	17.1
HAUL DISTANCE	(KM)	3.9	7.0	4.4	3.3
	(N MI)	2.1	3.8	2.4	1.8
DIRECTION	(DEG.TRUE)	295	0	0	0
BOTTOM DEPTH	(M)	384- 391	388- 366	375- 360	251- 251
	(FM)	210- 214	212- 200	205- 197	137- 137
MODAL DEPTH	(M)	387	377	367	251
NET/GEAR DEPTH	(M)	234- 234	132- 132	91- 81	179- 201
	(FM)	128- 128	72- 72	50- 44	98- 110
MODAL NET DEPTH	(M)	234	132	86	189
GEAR TYPE		221	221	221	221
TOTAL CATCH	(KG)	101	18	37	26
REMARKS		USABLE	USABLE	USABLE	USABLE
TARGET		MID LSC	BOT P	BOT VLSP	MID MSC
SOUNDER SUMMARY DEPTH	(M)	LMSC 165 -384	VLSP 0-117 P 119-146 LSC 146 -BOT	VLSP 0-91 P 128 LMSC 128 -BOT	VLSP 0-91 P 91-135 MSC 135 -BOT

APPENDIX TABLE 1 (CONTINUED)

HAUL NUMBER	1	2	3	4
DATE	FEB 8	FEB 8	FEB 8	FEB 9
PACIFIC HAKE	84	4	..	19
WALLEYE POLLOCK	13	6	13	1
AMERICAN SHAD	..	..	..	..
BIGFIN EELPOUT	..	..	..	..
CHINOOK SALMON	..	1	..	..
EELPOUTS	..	..	..	..
EULACHON	..	T	..	..
LINGCOD	..	..	..	..
PACIFIC COD	..	..	..	..
PACIFIC HERRING	..	..	..	..
PACIFIC TOMCOD	..	..	..	..
PLAINFIN MIDSHIPMAN	..	..	..	..
SABLEFISH	..	..	..	..
SHINER PERCH	..	..	..	..
NORTHERN SMOOTHTONGUE	..	T	..	
ENGLISH SOLE	..	..	..	..
FLATHEAD SOLE	..	..	..	..
REX SOLE	..	..	..	..
ROCK SOLE	..	..	..	..
SLENDER SOLE	..	..	..	..
STARRY FLOUNDER	..	..	..	..
S. ELONGATUS	..	..	..	..
S. FLAVIDUS	..	..	..	..
S. MALIGER	..	..	..	..
S. PINNIGER	..	..	..	..
S. DIPLOPROA	..	..	..	..
BROWN CAT SHARK	1	..	..	2
RATFISH	..	..	..	..
SKATES	..	..	..	..
SPINY DOGFISH	3	7	24	4
BRITTLE STARS	..	..	..	..
PINK SHRIMP	..	..	..	..
PRAWN	..	..	..	..
SEA URCHINS	..	..	..	..
SHRIMP	..	..	..	..
SIDESTRIPE SHRIMP	..	..	..	..
SQUID	..	..	..	..
STARFISH	..	..	..	..
DUNGENESS CRAB	..	..	..	..
TOTAL CATCH (KG)	101	18	37	26

APPENDIX TABLE 1 (CONTINUED)

HAUL NUMBER	5	6	7	8
DATE	FEB 9	FEB 9	FEB 10	FEB 10
AREA (LOCALITY)	S H SD	C ROGR	E MAYN	E MAYN
START TIME PST)	12:22	14:45	9:35	12:26
DURATION (MIN)	25	40	60	30
START N. LAT. (DEG)	49	49	49	48
(MIN)	24.5	17.7	51.5	53.7
W. LONG (DEG)	123	123	123	123
(MIN)	24.8	30.4	12.0	15.2
FINISH N. LAT. (DEG)	49	49	49	48
(MIN)	25.9	16.0	50.6	52.5
W. LONG (DEG)	123	123	123	123
(MIN)	24.3	27.7	6.1	13.7
HAUL DISTANCE (KM)	3.0	4.3	7.0	2.8
(N MI)	1.6	2.3	3.8	1.5
DIRECTION (DEG.TRUE)	0	0	0	137
BOTTOM DEPTH (M)	234- 194	179- 235	210- 214	214- 221
(FM)	128- 106	98- 129	115- 117	117- 121
MODAL DEPTH (M)	214	203	212	217
NET/GEAR DEPTH (M)	165- 165	150- 187	128- 124	146- 146
(FM)	90- 90	82- 102	70- 68	80- 80
MODAL NET DEPTH (M)	165	166	126	146
GEAR TYPE	221	221	221	221
TOTAL CATCH (KG)	47	120	329	235
REMARKS	USABLE	USABLE	USABLE	USABLE
TARGET	MID LSC	MID LSC	TOP MSC	MID MSC
SOUNDER SUMMARY DEPTH (M)	LSP 0-91 P 91-128 LSC 128 -234	LSP 0-110 P 110-119 LSC 119 -BOT	MSC 128 -146 LMSC 146 -BOT	MSC 110 -BOT

APPENDIX TABLE 1 (CONTINUED)

HAUL NUMBER	5	6	7	8
DATE	FEB 9	FEB 9	FEB 10	FEB 10
PACIFIC HAKE	34	62	75	32
WALLEYE POLLOCK	1	25	235	203
AMERICAN SHAD	..	..	..	..
BIGFIN EELPOUT	..	..	..	..
CHINOOK SALMON	..	2	..	..
EELPOUTS	..	..	..	..
EULACHON	..	..	..	..
LINGCOD	..	..	..	..
PACIFIC COD	..	2	..	..
PACIFIC HERRING	..	..	T	..
PACIFIC TOMCOD	..	..	..	..
PLAINFIN MIDSHIPMAN	..	..	..	..
SABLEFISH	..	..	..	..
SHINER PERCH	..	..	..	..
NORTHERN SMOOTHTONGUE	..	..	..	..
ENGLISH SOLE	..	..	T	..
FLATHEAD SOLE	..	..	..	..
REX SOLE	..	2	..	..
ROCK SOLE	..	..	..	..
SLENDER SOLE	..	..	..	..
STARRY FLOUNDER	..	..	..	..
S. ELONGATUS	..	..	..	..
S. FLAVIDUS	..	2	..	..
S. MALIGER	..	..	..	..
S. PINNIGER	..	..	..	..
S. DIPLOPROA	..	..	..	..
BROWN CAT SHARK	1	2	2	T
RATFISH	..	..	..	..
SKATES	..	..	..	..
SPINY DOGFISH	10	23	15	..
BRITTLE STARS	..	..	..	..
PINK SHRIMP	..	..	..	..
PRAWN	..	..	..	..
SEA URCHINS	..	..	..	..
SHRIMP	..	..	..	..
SIDESTRIPE SHRIMP	..	..	..	..
SQUID	1	..	2	..
STARFISH	..	..	..	..
DUNGENESS CRAB	..	..	..	..
TOTAL CATCH (KG)	47	120	329	235

APPENDIX TABLE 1 (CONTINUED)

HAUL NUMBER		9	10	11	12
DATE		FEB 10	FEB 11	FEB 11	FEB 11
AREA (LOCALITY)		ACT PS	POR PS	POR PS	POR PS
START TIME	PST)	14:38	8:45	11:02	13:35
DURATION	(MIN)	48	60	60	43
START N. LAT.	(DEG)	48	49	49	49
	(MIN)	57.9	7.2	4.2	2.3
W. LONG	(DEG)	123	123	123	123
	(MIN)	21.5	35.2	29.7	27.4
FINISH N. LAT.	(DEG)	48	49	49	49
	(MIN)	55.9	5.7	2.3	0.4
W. LONG	(DEG)	123	123	123	123
	(MIN)	19.5	31.4	26.0	25.0
HAUL DISTANCE	(KM)	4.6	5.4	5.7	4.6
	(N MI)	2.5	2.9	3.1	2.5
DIRECTION	(DEG.TRUE)	147	0	127	138
BOTTOM DEPTH	(M)	218- 194	240- 309	300- 320	337- 309
	(FM)	119- 106	131- 169	164- 175	184- 169
MODAL DEPTH	(M)	207	274	310	320
NET/GEAR DEPTH	(M)	165- 165	183- 187	238- 238	128- 128
	(FM)	90- 90	100- 102	130- 130	70- 70
MODAL NET DEPTH	(M)	165	185	238	128
GEAR TYPE		221	221	221	221
TOTAL CATCH	(KG)	186	176	311	24
REMARKS		USABLE	USABLE	USABLE	USABLE
TARGET		MID MSC	TOP MSC	MID MSC	TOP MSC
SOUNDER SUMMARY DEPTH	(M)	VLSP 0-128 MSC 129 -BOT	LSP 73-165 MSC 166 -BOT	VLSP 0-146 MSC 146 -247;274 -BOT	P 91 MSC 128 -183;256 -BOT

APPENDIX TABLE 1 (CONTINUED)

HAUL NUMBER	9	10	11	12
DATE	FEB 10	FEB 11	FEB 11	FEB 11
PACIFIC HAKE	70	98	138	10
WALLEYE POLLOCK	91	25	114	12
AMERICAN SHAD	..	..	..	..
BIGFIN EELPOUT	..	..	..	..
CHINOOK SALMON	..	..	..	..
EELPOUTS	..	..	..	..
EULACHON	..	..	..	..
LINGCOD	..	..	..	..
PACIFIC COD	..	..	..	..
PACIFIC HERRING	..	..	..	..
PACIFIC TOMCOD	..	..	..	..
PLAINFIN MIDSHIPMAN	..	..	..	..
SABLEFISH	..	..	..	..
SHINER PERCH	..	..	..	..
NORTHERN SMOOTHTONGUE	..	..	..	..
ENGLISH SOLE	..	..	..	..
FLATHEAD SOLE	..	..	..	..
REX SOLE	..	..	..	..
ROCK SOLE	..	..	..	..
SLENDER SOLE	..	..	..	..
STARRY FLOUNDER	..	..	..	..
S. ELONGATUS	..	..	..	..
S. FLAVIDUS	..	..	..	..
S. MALIGER	..	..	..	..
S. PINNIGER	..	..	..	..
S. DIPLOPROA	..	..	..	..
BROWN CAT SHARK	6	3	11	..
RATFISH	..	..	..	..
SKATES	..	..	..	..
SPINY DOGFISH	19	50	48	2
BRITTLE STARS	..	..	..	..
PINK SHRIMP	..	..	..	..
PRAWN	..	..	..	..
SEA URCHINS	..	..	..	..
SHRIMP	..	..	..	..
SIDESTRIPE SHRIMP	..	..	..	..
SQUID	T	..	T	..
STARFISH	..	..	..	..
DUNGENESS CRAB	..	..	..	..
TOTAL CATCH (KG)	186	176	311	24

APPENDIX TABLE 1 (CONTINUED)

HAUL NUMBER	13	14	15	16
DATE	FEB 11	FEB 12	FEB 12	FEB 12
AREA (LOCALITY)	POR PS	HAL BK	HAL BK	HAL BK
START TIME PST)	15:26	8:30	9:52	12:43
DURATION (MIN)	30	30	60	60
START N. LAT. (DEG)	49	49	49	49
(MIN)	4.1	17.5	16.8	18.7
W. LONG (DEG)	123	123	123	123
(MIN)	27.0	50.2	48.0	55.1
FINISH N. LAT. (DEG)	49	49	49	49
(MIN)	2.9	17.0	15.1	17.6
W. LONG (DEG)	123	123	123	123
(MIN)	25.6	48.6	44.0	51.0
HAUL DISTANCE (KM)	3.0	2.2	5.6	5.4
(N MI)	1.6	1.2	3.0	2.9
DIRECTION (DEG.TRUE)	145	0	0	113
BOTTOM DEPTH (M)	315- 304	417- 417	417- 406	421- 418
(FM)	173- 166	228- 228	228- 222	230- 229
MODAL DEPTH (M)	310	417	411	420
NET/GEAR DEPTH (M)	265- 265	256- 256	201- 201	165- 183
(FM)	145- 145	140- 140	110- 110	90- 100
MODAL NET DEPTH (M)	265	256	201	174
GEAR TYPE	221	221	221	221
TOTAL CATCH (KG)	422	87	109	104
REMARKS	USABLE	USABLE	USABLE	USABLE
TARGET	BOT MSC	MID MSC	TOP MSC	TOP MSC
SOUNDER SUMMARY DEPTH (M)	P 91 MSC 128 -201;238 -274	P 110-146 MSC 183 -329	MSP 91-110 P 111-147 MSC 201 -329	MSP 91-119 P 121-155 MSC 165 -293

APPENDIX TABLE 1 (CONTINUED)

HAUL NUMBER	13	14	15	16
DATE	FEB 11	FEB 12	FEB 12	FEB 12
PACIFIC HAKE	335	60	75	33
WALLEYE POLLOCK	42	9	8	6
AMERICAN SHAD	..	..	..	..
BIGFIN EELPOUT	..	..	..	..
CHINOOK SALMON	..	..	..	..
EELPOUTS	..	..	..	..
EULACHON	..	..	..	..
LINGCOD	..	..	..	..
PACIFIC COD	..	..	2	..
PACIFIC HERRING	..	..	..	..
PACIFIC TOMCOD	..	..	..	..
PLAINFIN MIDSHIPMAN	..	..	..	..
SABLEFISH	..	..	..	..
SHINER PERCH	..	..	..	..
NORTHERN SMOOTHTONGUE	..	..	..	..
ENGLISH SOLE	..	..	..	..
FLATHEAD SOLE	..	..	..	..
REX SOLE	..	..	..	..
ROCK SOLE	..	..	..	..
SLENDER SOLE	..	..	..	..
STARRY FLOUNDER	..	..	..	..
S. ELONGATUS	..	..	..	..
S. FLAVIDUS	..	..	..	..
S. MALIGER	..	..	..	..
S. PINNIGER	..	..	..	..
S. DIPLOPROA	..	..	..	..
BROWN CAT SHARK	6	..	..	..
RATFISH	..	..	..	..
SKATES	..	..	..	..
SPINY DOGFISH	39	18	24	65
BRITTLE STARS	..	..	..	..
PINK SHRIMP	..	..	..	..
PRAWN	..	..	..	..
SEA URCHINS	..	..	..	..
SHRIMP	..	..	..	..
SIDESTRIPE SHRIMP	..	..	..	..
SQUID	T	T	..	T
STARFISH	..	..	..	..
DUNGENESS CRAB	..	..	..	..
TOTAL CATCH (KG)	422	87	109	104

APPENDIX TABLE 1 (CONTINUED)

HAUL NUMBER	17	18	19	20
DATE	FEB 13	FEB 13	FEB 13	FEB 15
AREA (LOCALITY)	NANOOS	HAL BK	HAL BK	SWN CH
START TIME PST)	8:42	10:24	12:48	8:55
DURATION (MIN)	45	40	44	15
START N. LAT. (DEG)	49	49	49	48
(MIN)	21.5	20.1	18.3	48.1
W. LONG (DEG)	123	123	123	123
(MIN)	50.8	48.3	48.1	21.4
FINISH N. LAT. (DEG)	49	49	49	48
(MIN)	19.6	18.5	16.8	46.7
W. LONG (DEG)	123	123	123	123
(MIN)	48.1	45.2	46.0	21.5
HAUL DISTANCE (KM)	5.0	4.8	3.9	1.7
(N MI)	2.7	2.6	2.1	0.9
DIRECTION (DEG.TRUE)	0	0	140	0
BOTTOM DEPTH (M)	404- 377	375- 333	384- 413	84- 71
(FM)	221- 206	205- 182	210- 226	46- 39
MODAL DEPTH (M)	389	355	404	77
NET/GEAR DEPTH (M)	183- 183	91- 95	256- 256	..- ..
(FM)	100- 100	50- 52	140- 140	..- ..
MODAL NET DEPTH (M)	183	93	256	..
GEAR TYPE	221	221	221	105
TOTAL CATCH (KG)	27	20	201	40
REMARKS	USABLE	USABLE	USABLE	USABLE
TARGET	BOT MSC	TOP LSC	MID LMSC	
SOUNDER SUMMARY	SP 55-101	LSC 91-110	LSP 0-110	HSC 15
DEPTH (M)	P 110-128 MSC 146 -220;256 -329	P 119-137 MSC 183 -220;293 -BOT	P 119-137 LMSC 201 -329	ABOVE BOT

APPENDIX TABLE 1 (CONTINUED)

HAUL NUMBER	17	18	19	20
DATE	FEB 13	FEB 13	FEB 13	FEB 15
PACIFIC HAKE	10	..	101	..
WALLEYE POLLOCK	2	15	33	19
AMERICAN SHAD	..	..	..	..
BIGFIN EELPOUT	..	..	..	..
CHINOOK SALMON	..	..	..	..
EELPOUTS	..	..	..	..
EULACHON	..	..	..	T
LINGCOD	..	..	..	18
PACIFIC COD	..	..	..	T
PACIFIC HERRING	..	..	..	1
PACIFIC TOMCOD	..	..	..	2
PLAINFIN MIDSHIPMAN	..	..	..	..
SABLEFISH	..	..	..	..
SHINER PERCH	..	..	..	..
NORTHERN SMOOTHTONGUE	..	..	..	T
ENGLISH SOLE	..	..	..	..
FLATHEAD SOLE	..	..	..	..
REX SOLE	..	..	..	..
ROCK SOLE	..	..	..	..
SLENDER SOLE	..	..	..	..
STARRY FLOUNDER	..	..	..	..
S. ELONGATUS	..	..	..	..
S. FLAVIDUS	..	..	..	..
S. MALIGER	..	..	..	..
S. PINNIGER	..	..	2	..
S. DIPLOPROA	..	..	..	..
BROWN CAT SHARK	..	..	..	..
RATFISH	..	..	..	..
SKATES	..	..	..	..
SPINY DOGFISH	15	5	65	..
BRITTLE STARS	..	..	..	T
PINK SHRIMP	..	..	..	..
PRAWN	..	..	..	..
SEA URCHINS	..	..	..	..
SHRIMP	..	..	..	..
SIDESTRIPE SHRIMP	..	..	..	T
SQUID	..	..	T	..
STARFISH	..	..	..	..
DUNGENESS CRAB	..	..	..	T
TOTAL CATCH (KG)	27	20	201	40

APPENDIX TABLE 1 (CONTINUED)

HAUL NUMBER		21	22	23	24
DATE		FEB 15	FEB 15	FEB 15	FEB 15
AREA (LOCALITY)		SWN CH	SWN CH	SAT CH	SAT CH
START TIME	PST)	10:41	12:57	14:02	15:13
DURATION	(MIN)	30	9	30	30
START N. LAT.	(DEG)	48	48	48	48
	(MIN)	45.7	43.3	41.9	41.2
W. LONG	(DEG)	123	123	123	123
	(MIN)	20.0	25.4	29.5	30.8
FINISH N. LAT.	(DEG)	48	48	48	48
	(MIN)	44.5	43.3	42.5	42.2
W. LONG	(DEG)	123	123	123	123
	(MIN)	18.6	24.5	27.8	29.2
HAUL DISTANCE	(KM)	2.6	1.1	2.4	2.8
	(N MI)	1.4	0.6	1.3	1.5
DIRECTION (DEG/TRUE)		0	90	59	49
BOTTOM DEPTH	(M)	73- 81	84- 75	77- 66	73- 64
	(FM)	40- 44	46- 41	42- 36	40- 35
MODAL DEPTH	(M)	77	80	71	69
NET/GEAR DEPTH	(M)	..- ..	..- ..	..- ..	..- ..
	(FM)	..- ..	..- ..	..- ..	..- ..
MODAL NET DEPTH	(M)	..	..	..	..
GEAR TYPE		105	105	105	105
TOTAL CATCH	(KG)	61	298	561	6
REMARKS		USABLE	USABLE	USABLE	USABLE
SOUNDER SUMMARY DEPTH (M)		MSC 15 ABOVE BOT			

APPENDIX TABLE 1 (CONTINUED)

HAUL NUMBER	21	22	23	24
DATE	FEB 15	FEB 15	FEB 15	FEB 15
PACIFIC HAKE	2	3	6	..
WALLEYE POLLOCK	21	17	320	1
AMERICAN SHAD	3	..	T	..
BIGFIN EELPOUT	..	..	..	1
CHINOOK SALMON	..	..	..	..
EELPOUTS	..	T	..	..
EULACHON	..	..	4	..
LINGCOD	2	T	7	..
PACIFIC COD	8	19	25	..
PACIFIC HERRING	11	249	148	2
PACIFIC TOMCOD	..	2	..	..
PLAINFIN MIDSHIPMAN	..	..	..	..
SABLEFISH	3	..	4	..
SHINER PERCH	..	..	..	T
NORTHERN SMOOTHTONGUE	..	..	..	..
ENGLISH SOLE	3	T	33	T
FLATHEAD SOLE	4	T	..	..
REX SOLE	2	T	..	..
ROCK SOLE	T	T	4	..
SLENDER SOLE	..	..	..	..
STARRY FLOUNDER	..	..	3	..
S. ELONGATUS	..	..	..	..
S. FLAVIDUS	..	..	..	..
S. MALIGER	..	..	5	..
S. PINNIGER	..	..	..	..
S. DIPLOPROA	..	..	..	..
BROWN CAT SHARK	..	..	..	..
RATFISH	2	..	..	..
SKATES	..	..	..	..
SPINY DOGFISH	..	8	2	..
BRITTLE STARS	..	..	..	..
PINK SHRIMP	..	..	..	1
PRAWN	..	..	..	..
SEA URCHINS	..	..	..	..
SHRIMP	..	..	..	..
SIDESTRIPE SHRIMP	..	..	..	1
SQUID	T	..	..	..
STARFISH	..	..	..	..
DUNGENESS CRAB	..	..	..	T
TOTAL CATCH (KG)	61	298	561	6

APPENDIX TABLE 1 (CONTINUED)

HAUL NUMBER	25	26	27	28
DATE	FEB 16	FEB 16	FEB 16	FEB 16
AREA (LOCALITY)	STU CH	STU CH	STU CH	STU CH
START TIME PST)	8:25	10:15	12:18	14:40
DURATION (MIN)	15	30	9	15
START N. LAT. (DEG)	48	48	48	48
(MIN)	52.1	55.3	57.2	58.4
W. LONG (DEG)	123	123	123	123
(MIN)	34.4	39.2	43.1	44.1
FINISH N. LAT. (DEG)	48	48	48	48
(MIN)	51.4	54.1	57.4	57.8
W. LONG (DEG)	123	123	123	123
(MIN)	34.3	37.5	42.6	43.2
HAUL DISTANCE (KM)	0.0	0.0	0.9	1.5
(N MI)	0.0	0.0	0.5	0.8
DIRECTION (DEG.TRUE)	0	0	137	0
BOTTOM DEPTH (M)	152- 146	106- 157	84- 88	79- 82
(FM)	83- 80	58- 86	46- 48	43- 45
MODAL DEPTH (M)	149	131	86	81
NET/GEAR DEPTH (M)	..- ..	..- ..	..- ..	..- ..
(FM)	..- ..	..- ..	..- ..	..- ..
MODAL NET DEPTH (M)	..	..	..	..
GEAR TYPE	105	105	105	105
TOTAL CATCH (KG)	51	318	878	240
REMARKS	USABLE	USABLE	USABLE	USABLE
SOUNDER SUMMARY DEPTH (M)				

APPENDIX TABLE 1 (CONTINUED)

HAUL NUMBER	25	26	27	28
DATE	FEB 16	FEB 16	FEB 16	FEB 16
PACIFIC HAKE	20	176	790	77
WALLEYE POLLOCK	3	2	..	5
AMERICAN SHAD	..	..	..	..
BIGFIN EELPOUT	..	3	T	..
CHINOOK SALMON	..	..	..	..
EELPOUTS	..	..	..	..
EULACHON	..	..	..	..
LINGCOD	..	..	2	7
PACIFIC COD	..	5	..	17
PACIFIC HERRING	..	..	..	T
PACIFIC TOMCOD	..	..	..	..
PLAINFIN MIDSHIPMAN	..	T	7	13
SABLEFISH	..	..	..	..
SHINER PERCH	..	..	..	..
NORTHERN SMOOTHTONGUE	T	..	..	..
ENGLISH SOLE	..	11	T	30
FLATHEAD SOLE	1	..	6	51
REX SOLE	..	..	..	..
ROCK SOLE	..	..	..	T
SLENDER SOLE	T	..	71	30
STARRY FLOUNDER	..	..	..	..
S. ELONGATUS	2	..	T	..
S. FLAVIDUS	..	..	..	..
S. MALIGER	..	..	..	..
S. PINNIGER	..	..	..	..
S. DIPLOPROA	..	..	T	..
BROWN CAT SHARK	..	..	..	..
RATFISH	2	..	..	..
SKATES	..	T	..	..
SPINY DOGFISH	1	5	2	10
BRITTLE STARS	..	..	..	..
PINK SHRIMP	7	..	..	..
PRAWN	2	..	..	..
SEA URCHINS	..	108	..	..
SHRIMP	..	8	..	..
SIDESTRIPE SHRIMP	13	..	..	..
SQUID	..	..	T	T
STARFISH	..	..	..	..
DUNGENESS CRAB	..	T	..	..
TOTAL CATCH (KG)	51	318	878	240

APPENDIX TABLE 1 (CONTINUED)

HAUL NUMBER		29	30	31	32
DATE		FEB 17	FEB 17	FEB 17	FEB 17
AREA (LOCALITY)		STU CH	STU CH	STU CH	STU CH
START TIME	PST)	8:42	10:25	12:19	14:00
DURATION	(MIN)	30	20	23	29
START N. LAT.	(DEG)	49	49	49	49
	(MIN)	1.2	4.3	6.0	6.8
W. LONG	(DEG)	123	123	123	123
	(MIN)	44.2	44.8	45.8	43.3
FINISH N. LAT.	(DEG)	48	49	49	49
	(MIN)	59.9	3.6	5.2	5.7
W. LONG	(DEG)	123	123	123	123
	(MIN)	43.3	44.2	44.5	41.8
HAUL DISTANCE	(KM)	0.0	0.0	2.2	2.6
	(N MI)	0.0	0.0	1.2	1.4
DIRECTION (DEG. TRUE)		0	0	134	142
BOTTOM DEPTH	(M)	71- 70	62- 66	64- 62	53- 60
	(FM)	39- 38	34- 36	35- 34	29- 33
MODAL DEPTH	(M)	70	64	63	57
NET/GEAR DEPTH	(M)	..- ..	..- ..	..- ..	..- ..
	(FM)	..- ..	..- ..	..- ..	..- ..
MODAL NET DEPTH	(M)	..	..	..	..
GEAR TYPE		105	105	105	105
TOTAL CATCH	(KG)	0	388	644	763
REMARKS		USABLE (MUD TOW)	USABLE	USABLE	USABLE
SOUNDER SUMMARY DEPTH (M)					

APPENDIX TABLE 1 (CONTINUED)

HAUL NUMBER	29	30	31	32
DATE	FEB 17	FEB 17	FEB 17	FEB 17
PACIFIC HAKE	..	134	80	4
WALLEYE POLLOCK	..	6	8	11
AMERICAN SHAD	..	..	..	..
BIGFIN EELPOUT	..	..	..	..
CHINOOK SALMON	..	..	..	..
EELPOUTS	..	..	10	..
EULACHON	..	T	..	..
LINGCOD	..	31	T	18
PACIFIC COD	..	9	11	6
PACIFIC HERRING	..	..	..	4
PACIFIC TOMCOD	..	..	..	..
PLAINFIN MIDSHIPMAN	..	118	140	18
SABLEFISH	..	..	..	..
SHINER PERCH	..	..	..	..
NORTHERN SMOOTHTONGUE	..	..	..	..
ENGLISH SOLE	..	30	321	68
FLATHEAD SOLE	..	31	30	55
REX SOLE	..	..	..	..
ROCK SOLE	..	5	T	13
SLENDER SOLE	..	20	30	..
STARRY FLOUNDER	..	..	10	22
S. ELONGATUS	..	..	..	..
S. FLAVIDUS	..	..	..	..
S. MALIGER	..	..	..	..
S. PINNIGER	..	..	..	..
S. DIPLOPROA	..	..	..	..
BROWN CAT SHARK	..	..	..	..
RATFISH	..	..	4	529
SKATES	..	..	..	..
SPINY DOGFISH	..	3	..	5
BRITTLE STARS	..	..	..	..
PINK SHRIMP	..	..	..	..
PRAWN	..	..	..	..
SEA URCHINS	..	..	..	..
SHRIMP	..	..	..	..
SIDESTRIPE SHRIMP	..	..	..	..
SQUID	..	1	T	10
STARFISH	..	..	..	..
DUNGENESS CRAB	..	..	..	..
TOTAL CATCH (KG)	0	388	644	763

APPENDIX TABLE 1 (CONTINUED)

HAUL NUMBER		33	34	35	36
DATE		FEB 18	FEB 18	FEB 18	FEB 18
AREA (LOCALITY)		POR PS	POR PS	TRN CH	ACT PS
START TIME	PST)	8:08	9:44	12:09	14:35
DURATION	(MIN)	30	30	30	13
START N. LAT.	(DEG)	49	48	48	48
	(MIN)	1.2	58.6	53.0	55.2
W. LONG	(DEG)	123	123	123	123
	(MIN)	38.0	34.7	26.9	19.4
FINISH N. LAT.	(DEG)	49	48	48	48
	(MIN)	1.8	59.7	54.0	55.6
W. LONG	(DEG)	123	123	123	123
	(MIN)	40.3	35.8	28.5	20.3
HAUL DISTANCE	(KM)	0.0	2.4	2.4	1.3
	(N MI)	0.0	1.3	1.3	0.7
DIRECTION	(DEG.TRUE)	0	0	31	303
BOTTOM DEPTH	(M)	44- 38	51- 53	40- 37	190- 187
	(FM)	24- 21	28- 29	22- 20	104- 102
MODAL DEPTH	(M)	41	52	38	189
NET/GEAR DEPTH	(M)	..- ..	..- ..	..- ..	..- ..
	(FM)	..- ..	..- ..	..- ..	..- ..
MODAL NET DEPTH	(M)	..	..	..	..
GEAR TYPE		105	105	105	221
TOTAL CATCH	(KG)	48	144	83	21
REMARKS		USABLE	USABLE	USABLE	USABLE
SOUNDER SUMMARY DEPTH (M)					

APPENDIX TABLE 1 (CONTINUED)

HAUL NUMBER	33	34	35	36
DATE	FEB 18	FEB 18	FEB 18	FEB 18
PACIFIC HAKE	..	2	..	2
WALLEYE POLLOCK	1	11	1	4
AMERICAN SHAD	..	..	..	..
BIGFIN EELPOUT	..	..	..	..
CHINOOK SALMON	..	..	..	..
EELPOUTS	..	..	..	..
EULACHON	..	..	..	..
LINGCOD	8	40	1	..
PACIFIC COD	2	T	4	1
PACIFIC HERRING	T	T	55	..
PACIFIC TOMCOD	1	..	..	..
PLAINFIN MIDSHIPMAN	..	3	..	..
SABLEFISH	..	..	1	..
SHINER PERCH	20	..	T	..
NORTHERN SMOOTHTONGUE	..	..	..	..
ENGLISH SOLE	T	27	13	..
FLATHEAD SOLE	5	3	T	T
REX SOLE	1	..	..	..
ROCK SOLE	1	3	3	..
SLENDER SOLE	..	..	..	..
STARRY FLOUNDER	3	..	..	..
S. ELONGATUS	..	..	..	..
S. FLAVIDUS	..	..	..	1
S. MALIGER	..	..	..	..
S. PINNIGER	..	..	..	..
S. DIPLOPROA	..	..	..	..
BROWN CAT SHARK	..	..	..	1
RATFISH	..	..	..	3
SKATES	..	..	4	..
SPINY DOGFISH	..	..	..	..
BRITTLE STARS	..	..	..	8
PINK SHRIMP	..	..	..	..
PRAWN	..	..	..	..
SEA URCHINS	..	..	..	..
SHRIMP	..	..	..	..
SIDESTRIPE SHRIMP	..	..	..	1
SQUID	6	1	1	T
STARFISH	..	54	..	..
DUNGENESS CRAB	T	..	..	..
TOTAL CATCH (KG)	48	144	83	21

APPENDIX TABLE 1 (CONTINUED)

HAUL NUMBER	37	38	39	40
DATE	FEB 20	FEB 20	FEB 20	FEB 20
AREA (LOCALITY)	THRM I	THRM I	THRM I	THRM I
START TIME PST)	8:43	10:22	13:43	14:56
DURATION (MIN)	45	45	30	30
START N. LAT. (DEG)	49	49	49	49
(MIN)	32.1	30.4	26.0	24.2
W. LONG (DEG)	124	124	124	124
(MIN)	6.5	5.6	3.5	3.2
FINISH N. LAT. (DEG)	49	49	49	49
(MIN)	30.1	28.5	24.3	23.5
W. LONG (DEG)	124	124	124	124
(MIN)	6.0	4.7	2.7	1.1
HAUL DISTANCE (KM)	4.1	3.7	3.3	2.8
(N MI)	2.2	2.0	1.8	1.5
DIRECTION (DEG.TRUE)	0	0	162	116
BOTTOM DEPTH (M)	384- 422	457- 397	404- 402	395- 408
(FM)	210- 231	250- 217	221- 220	216- 223
MODAL DEPTH (M)	..	432	403	401
NET/GEAR DEPTH (M)	183- 187	187- 187	99- 91	146- 146
(FM)	100- 102	102- 102	54- 50	80- 80
MODAL NET DEPTH (M)	185	187	95	146
GEAR TYPE	221	221	221	221
TOTAL CATCH (KG)	3	180	47	55
REMARKS	USABLE	USABLE	USABLE	USABLE
TARGET	MID MSC	MID MSC	BOT LSP	BOT P
SOUNDER SUMMARY DEPTH (M)	LSP 73-106 P 128-146 MSC 165 -238	LSP 88-110 P 128-146 MSC 165 -256	LSP 73-91 P 110-146 MSC 165 -274	SAME AS SET 39

APPENDIX TABLE 1 (CONTINUED)

HAUL NUMBER	37	38	39	40
DATE	FEB 20	FEB 20	FEB 20	FEB 20
PACIFIC HAKE	1	102	1	20
WALLEYE POLLOCK	..	17	27	19
AMERICAN SHAD	..	..	..	..
BIGFIN EELPOUT	..	..	..	..
CHINOOK SALMON	..	..	..	T
EELPOUTS	..	..	..	..
EULACHON	..	..	..	..
LINGCOD	..	..	..	..
PACIFIC COD	..	..	..	..
PACIFIC HERRING	..	..	..	..
PACIFIC TOMCOD	..	..	..	..
PLAINFIN MIDSHIPMAN	..	..	..	..
SABLEFISH	..	..	..	..
SHINER PERCH	..	..	..	..
NORTHERN SMOOTHTONGUE	..	..	..	..
ENGLISH SOLE	..	..	..	..
FLATHEAD SOLE	..	..	..	..
REX SOLE	..	..	..	..
ROCK SOLE	..	..	..	..
SLENDER SOLE	..	..	..	..
STARRY FLOUNDER	..	..	..	..
S. ELONGATUS	..	..	..	..
S. FLAVIDUS	..	..	2	..
S. MALIGER	..	..	..	..
S. PINNIGER	..	..	..	..
S. DIPLOPROA	..	..	..	..
BROWN CAT SHARK	..	16	T	..
RATFISH	..	..	..	..
SKATES	..	..	..	..
SPINY DOGFISH	2	45	17	16
BRITTLE STARS	..	..	..	..
PINK SHRIMP	..	..	..	..
PRAWN	..	..	..	..
SEA URCHINS	..	..	..	..
SHRIMP	..	..	..	..
SIDESTRIPE SHRIMP	..	..	..	..
SQUID	..	..	..	..
STARFISH	..	..	..	..
DUNGENESS CRAB	..	..	..	..
TOTAL CATCH (KG)	3	180	47	55

APPENDIX TABLE 1 (CONTINUED)

HAUL NUMBER	41	42	43	44
DATE	FEB 22	FEB 22	FEB 22	FEB 22
AREA (LOCALITY)	MAL ST	MAL ST	MAL ST	MAL ST
START TIME PST)	8:37	10:20	12:55	14:49
DURATION (MIN)	45	45	43	46
START N. LAT. (DEG)	49	49	49	49
(MIN)	38.6	37.0	41.2	43.4
W. LONG (DEG)	124	124	124	124
(MIN)	14.9	13.0	18.9	20.2
FINISH N. LAT. (DEG)	49	49	49	49
(MIN)	36.5	38.9	43.3	41.5
W. LONG (DEG)	124	124	124	124
(MIN)	12.9	15.2	20.2	18.7
HAUL DISTANCE (KM)	4.8	4.1	4.3	3.9
(N MI)	2.6	2.2	2.3	2.1
DIRECTION (DEG. TRUE)	0	0	341	144
BOTTOM DEPTH (M)	349- 289	333- 346	333- 322	322- 326
(FM)	191- 158	182- 189	182- 176	176- 178
MODAL DEPTH (M)	319	340	326	..
NET/GEAR DEPTH (M)	183- 192	192- 183	229- 229	91- 110
(FM)	100- 105	105- 100	125- 125	50- 60
MODAL NET DEPTH (M)	188	187	229	96
GEAR TYPE	221	221	221	221
TOTAL CATCH (KG)	125	71	119	14
REMARKS	USABLE	USABLE	USABLE	USABLE
TARGET	TOP MSC	TOP MSC	BOT MSC	MID LSP
SOUNDER SUMMARY DEPTH (M)	LSP 73-110 P 119-165 MSC 183-220	SAME AS SET 41	SAME AS SET 41	SAME AS SET 41

APPENDIX TABLE 1 (CONTINUED)

HAUL NUMBER	41	42	43	44
DATE	FEB 22	FEB 22	FEB 22	FEB 22
PACIFIC HAKE	104	60	95	1
WALLEYE POLLOCK	1	1	1	12
AMERICAN SHAD	..	..	..	..
BIGFIN EELPOUT	..	..	..	..
CHINOOK SALMON	..	..	..	..
EELPOUTS	..	..	..	..
EULACHON	..	..	..	..
LINGCOD	..	..	..	..
PACIFIC COD	..	..	..	..
PACIFIC HERRING	..	..	..	..
PACIFIC TOMCOD	..	..	..	..
PLAINFIN MIDSHIPMAN	..	..	..	..
SABLEFISH	..	..	..	..
SHINER PERCH	..	..	..	..
NORTHERN SMOOTHTONGUE	T	..	T	..
ENGLISH SOLE	..	..	..	..
FLATHEAD SOLE	..	..	..	..
REX SOLE	..	..	..	..
ROCK SOLE	..	..	..	..
SLENDER SOLE	..	..	..	..
STARRY FLOUNDER	..	..	..	..
S. ELONGATUS	..	..	..	..
S. FLAVIDUS	..	..	..	..
S. MALIGER	..	..	..	..
S. PINNIGER	..	..	..	..
S. DIPLOPROA	..	..	..	..
BROWN CAT SHARK	1	..	4	..
RATFISH	..	..	..	..
SKATES	..	..	..	..
SPINY DOGFISH	19	10	19	1
BRITTLE STARS	..	..	..	..
PINK SHRIMP	..	..	..	..
PRAWN	..	..	..	..
SEA URCHINS	..	..	..	..
SHRIMP	..	..	..	..
SIDESTRIPE SHRIMP	..	..	..	..
SQUID	..	..	..	..
STARFISH	..	..	..	..
DUNGENESS CRAB	..	..	..	..
TOTAL CATCH (KG)	125	71	119	14

APPENDIX TABLE 1 (CONTINUED)

HAUL NUMBER	45	46	47	48
DATE	FEB 23	FEB 23	FEB 24	FEB 24
AREA (LOCALITY)	BUTE	BUTE	GRNT R	GRNT R
START TIME PST)	10:06	15:17	10:12	13:00
DURATION (MIN)	45	30	45	60
START N. LAT. (DEG)	50	50	49	49
(MIN)	16.5	7.5	47.6	47.5
W. LONG (DEG)	124	124	124	124
(MIN)	58.3	47.2	48.8	48.4
FINISH N. LAT. (DEG)	50	50	49	49
(MIN)	15.8	8.3	50.1	50.6
W. LONG (DEG)	125	124	124	124
(MIN)	0.4	45.5	50.2	49.6
HAUL DISTANCE (KM)	0.0	2.6	5.0	5.9
(N MI)	0.0	1.4	2.7	3.2
DIRECTION (DEG.TRUE)	0	52	0	347
BOTTOM DEPTH (M)	508- 390	503- 463	358- 293	358- 241
(FM)	278- 213	275- 253	196- 160	196- 132
MODAL DEPTH (M)	450	..	323	300
NET/GEAR DEPTH (M)	183- 190	229- 229	187- 183	220- 220
(FM)	100- 104	125- 125	102- 100	120- 120
MODAL NET DEPTH (M)	185	229	185	220
GEAR TYPE	221	221	221	221
TOTAL CATCH (KG)	9	100	112	347
REMARKS	USABLE	USABLE	USABLE	USABLE
TARGET	TOP VLSC	MID LSC	MID MHSC	BOT MHSC
SOUNDER SUMMARY DEPTH (M)	VLSP 0-128 P 146-174 VLSC 183 -256	LSP 0-128 P 146-183 LSC 201 -238	LSP 91-110 P 137-155 MHSC 174 -220	SAME AS SET 47

APPENDIX TABLE 1 (CONTINUED)

HAUL NUMBER	45	46	47	48
DATE	FEB 23	FEB 23	FEB 24	FEB 24
PACIFIC HAKE	2	30	88	317
WALLEYE POLLOCK	5	2	12	7
AMERICAN SHAD	..	..	..	..
BIGFIN EELPOUT	..	..	..	..
CHINOOK SALMON	..	..	..	..
EELPOUTS	..	..	..	..
EULACHON	..	..	..	..
LINGCOD	..	..	..	..
PACIFIC COD	..	..	6	..
PACIFIC HERRING	..	..	..	..
PACIFIC TOMCOD	..	..	..	..
PLAINFIN MIDSHIPMAN	..	..	..	..
SABLEFISH	..	..	..	..
SHINER PERCH	..	..	..	..
NORTHERN SMOOTHTONGUE	..	..	..	..
ENGLISH SOLE	1	..	..	..
FLATHEAD SOLE	..	..	..	..
REX SOLE	..	..	..	..
ROCK SOLE	..	..	..	..
SLENDER SOLE	..	..	..	..
STARRY FLOUNDER	..	..	..	..
S. ELONGATUS	..	..	..	..
S. FLAVIDUS	..	..	..	..
S. MALIGER	..	..	..	..
S. PINNIGER	..	..	..	..
S. DIPLOPROA	..	..	..	..
BROWN CAT SHARK	..	..	..	..
RATFISH	..	..	..	..
SKATES	..	..	..	..
SPINY DOGFISH	1	68	6	23
BRITTLE STARS	..	..	..	..
PINK SHRIMP	..	..	..	..
PRAWN	..	..	..	..
SEA URCHINS	..	..	..	..
SHRIMP	..	..	..	..
SIDESTRIPE SHRIMP	..	..	..	..
SQUID	..	..	..	T
STARFISH	..	..	..	..
DUNGENESS CRAB	..	..	..	..
TOTAL CATCH (KG)	9	100	112	347

APPENDIX TABLE 1 (CONTINUED)

HAUL NUMBER	49	50	51	52
DATE	FEB 24	FEB 26	FEB 26	FEB 26
AREA (LOCALITY)	GRNT R	QUAL-P	SAB CH	THRM I
START TIME PST)	15:15	8:27	11:02	15:26
DURATION (MIN)	30	35	58	35
START N. LAT. (DEG)	49	49	49	49
(MIN)	50.4	25.5	32.5	26.1
W. LONG (DEG)	124	124	124	124
(MIN)	50.3	20.5	18.0	2.7
FINISH N. LAT. (DEG)	49	49	49	49
(MIN)	48.9	26.5	34.0	27.6
W. LONG (DEG)	124	124	124	124
(MIN)	48.9	23.1	22.3	4.0
HAUL DISTANCE (KM)	3.1	3.7	5.7	0.0
(N MI)	1.7	2.0	3.1	0.0
DIRECTION (DEG.TRUE)	148	0	298	0
BOTTOM DEPTH (M)	307- 287	353- 340	348- 351	404- 399
(FM)	168- 157	193- 186	190- 192	221- 218
MODAL DEPTH (M)	297	340	..	402
NET/GEAR DEPTH (M)	247- 247	183- 183	238- 238	256- 256
(FM)	135- 135	100- 100	130- 130	140- 140
MODAL NET DEPTH (M)	247	183	238	256
GEAR TYPE	221	221	221	221
TOTAL CATCH (KG)	101	83	84	108
REMARKS	USABLE	USABLE	USABLE	USABLE
TARGET	BOT MHSC	TOP LSC	TOP LSC	BOT LSC
SOUNDER SUMMARY DEPTH (M)	SAME AS SET 47	VLSP 0-91 P 110-137 LSC 183 -229	LSP 91-128 P 137-210 LSC 238 -BOT	LSP 91-110 P 119-137 LSC 183 -256

APPENDIX TABLE 1 (CONTINUED)

HAUL NUMBER	49	50	51	52
DATE	FEB 24	FEB 26	FEB 26	FEB 26
PACIFIC HAKE	93	69	65	85
WALLEYE POLLOCK	2	T	3	11
AMERICAN SHAD	..	..	..	..
BIGFIN EELPOUT	..	..	..	..
CHINOOK SALMON	..	..	..	3
EELPOUTS	..	..	..	..
EULACHON	..	..	..	..
LINGCOD	..	..	..	..
PACIFIC COD	..	..	..	..
PACIFIC HERRING	..	..	..	..
PACIFIC TOMCOD	..	..	..	..
PLAINFIN MIDSHIPMAN	..	..	..	..
SABLEFISH	..	..	..	..
SHINER PERCH	..	..	..	..
NORTHERN SMOOTHTONGUE	T	T	..	..
ENGLISH SOLE	..	..	..	..
FLATHEAD SOLE	..	..	..	..
REX SOLE	..	..	..	..
ROCK SOLE	..	..	..	..
SLENDER SOLE	..	..	..	..
STARRY FLOUNDER	..	..	..	..
S. ELONGATUS	..	..	..	..
S. FLAVIDUS	..	..	..	..
S. MALIGER	..	..	..	..
S. PINNIGER	..	..	..	..
S. DIPLOPROA	..	..	..	..
BROWN CAT SHARK	T	..	..	T
RATFISH	..	..	..	..
SKATES	..	..	..	..
SPINY DOGFISH	6	14	16	9
BRITTLE STARS	..	..	..	..
PINK SHRIMP	..	..	..	..
PRAWN	..	..	..	..
SEA URCHINS	..	..	..	..
SHRIMP	..	..	T	..
SIDESTRIPE SHRIMP	..	..	..	..
SQUID	..	..	..	T
STARFISH	..	..	..	..
DUNGENESS CRAB	..	..	..	..
TOTAL CATCH (KG)	101	83	84	108

APPENDIX TABLE 1 (CONTINUED)

HAUL NUMBER	53	54	55
DATE	FEB 27	FEB 27	FEB 27
AREA (LOCALITY)	HAL BK	HAL BK	HAL BK
START TIME PST)	10:22	13:12	15:06
DURATION (MIN)	30	29	30
START N. LAT. (DEG)	49	49	49
(MIN)	16.2	15.7	16.5
W. LONG (DEG)	123	123	123
(MIN)	40.8	45.6	43.9
FINISH N. LAT. (DEG)	49	49	49
(MIN)	16.4	17.0	17.3
W. LONG (DEG)	123	123	123
(MIN)	42.6	47.4	42.6
HAUL DISTANCE (KM)	2.2	3.1	3.0
(N MI)	1.2	1.7	1.6
DIRECTION (DEG.TRUE)	0	317	301
BOTTOM DEPTH (M)	382- 338	413- 415	338- 318
(FM)	209- 185	226- 227	185- 174
MODAL DEPTH (M)	360	414	..
NET/GEAR DEPTH (M)	183- 183	238- 238	165- 165
(FM)	100- 100	130- 130	90- 90
MODAL NET DEPTH (M)	183	238	165
GEAR TYPE	221	221	221
TOTAL CATCH (KG)	208	139	262
REMARKS	USABLE	USABLE	USABLE
TARGET	MID HSC	BOT MSC	TOP HSC
SOUNDER SUMMARY DEPTH (M)	LSP 91-119 MP 125-155 HSC 165 -201	LSP 91-110 MP 128-137 MSC 165 -201	LSP 91-119 LP 128-146 HSC 165-201 MSC 201-BOT

APPENDIX TABLE 1 (CONTINUED)

HAUL NUMBER	53	54	55
DATE	FEB 27	FEB 27	FEB 27
PACIFIC HAKE	120	90	58
WALLEYE POLLOCK	75	27	164
AMERICAN SHAD	..	..	..
BIGFIN EELPOUT	..	..	..
CHINOOK SALMON	..	..	..
EELPOUTS	..	..	..
EULACHON	..	..	..
LINGCOD	..	..	..
PACIFIC COD	..	..	2
PACIFIC HERRING	..	..	..
PACIFIC TOMCOD	T	..	..
PLAINFIN MIDSHIPMAN	..	..	..
SABLEFISH	..	..	..
SHINER PERCH	..	..	..
NORTHERN SMOOTHTONGUE	..	T	T
ENGLISH SOLE	..	..	..
FLATHEAD SOLE	..	..	..
REX SOLE	..	..	..
ROCK SOLE	..	..	..
SLENDER SOLE	..	..	..
STARRY FLOUNDER	..	..	..
S. ELONGATUS	..	..	..
S. FLAVIDUS	..	..	..
S. MALIGER	..	..	..
S. PINNIGER	..	..	..
S. DIPLOPROA	..	..	..
BROWN CAT SHARK	..	T	1
RATFISH	..	..	..
SKATES	..	..	..
SPINY DOGFISH	13	22	37
BRITTLE STARS	..	..	..
PINK SHRIMP	..	..	..
PRAWN	..	..	..
SEA URCHINS	..	..	..
SHRIMP	..	..	..
SIDESTRIPE SHRIMP	..	..	..
SQUID	..	..	..
STARFISH	..	..	..
DUNGENESS CRAB	..	..	..
TOTAL CATCH (KG)	208	139	262

APPENDIX TABLE 2. FISHING LOG FOR R/V G.B. REED, IN THE STRAIT OF GEORGIA, APRIL 18-24, 1983.

HAUL NUMBER		1	2	3	4
DATE		APR 19	APR 19	APR 20	APR 20
AREA (LOCALITY)		HAL BK	HAL BK	HAL BK	HAL BK
START TIME	PST)	10:30	14:30	9:01	11:22
DURATION	(MIN)	27	60	46	60
START N. LAT.	(DEG)	49	49	49	49
	(MIN)	16.5	17.4	18.3	15.6
W. LONG	(DEG)	123	123	123	123
	(MIN)	41.2	43.1	24.6	31.9
FINISH N. LAT.	(DEG)	49	49	49	49
	(MIN)	17.4	15.4	16.3	15.4
W. LONG	(DEG)	123	123	123	123
	(MIN)	43.4	37.7	22.0	36.9
HAUL DISTANCE	(KM)	3.1	7.4	4.8	5.9
	(N MI)	1.7	4.0	2.6	3.2
DIRECTION	(DEG.TRUE)	290	121	138	266
BOTTOM DEPTH	(M)	358- 229	274- 366	256- 247	349- 366
	(FM)	196- 125	150- 200	140- 135	191- 200
MODAL DEPTH	(M)	297	320	252	357
NET/GEAR DEPTH	(M)	201- 201	238- 252	183- 183	174- 183
	(FM)	110- 110	130- 138	100- 100	95- 100
MODAL NET DEPTH	(M)	201	245	183	179
GEAR TYPE		221	221	221	221
TOTAL CATCH	(KG)	46	758	1605	898
REMARKS		USABLE	USABLE	USABLE	USABLE
TARGET		MID HSC	MID MSC	BOT HSC	TOP HSC
SOUNDER SUMMARY DEPTH	(M)	LSP 82-128 HSC 165-293 MSC 293-329	LSP 91-110 P 110-146 MSC 183-274	LSP 110-146 M-HSC 146-201 LSC 201-BOT	LP 0-37 VLSP 73-110 LP 110-128 LSC 146-165 HSC 165-256 LSC 256-BOT

APPENDIX TABLE 2 (CONTINUED)

HAUL NUMBER	1	2	3	4
DATE	APR 19	APR 19	APR 20	APR 20
PACIFIC HAKE	35	650	1542	765
WALLEYE POLLOCK	3	4	2	33
PACIFIC COD	..	1	..	..
NORTHERN SMOOTHTONGUE	..	P	..	..
CURLFIN SOLE	..	1	..	..
ENGLISH SOLE	..	..	..	..
SEB. ALASCANUS	..	1	..	..
BROWN CAT SHARK	1	2	1	22
RATFISH	..	1	..	..
SKATES	..	8	..	..
SPINY DOGFISH	7	89	59	77
SQUID	..	..	1	1
GLASS SHRIMP	..	..	..	..
TOTAL CATCH (KG)	46	758	1605	898

APPENDIX TABLE 2 (CONTINUED)

HAUL NUMBER	5	6	7	8
DATE	APR 20	APR 21	APR 21	APR 21
AREA (LOCALITY)	HAL BK	HAL BK	QUAL-P	QUAL-P
START TIME PST)	14:20	8:53	11:14	13:33
DURATION (MIN)	88	40	51	34
START N. LAT. (DEG)	49	49	49	49
(MIN)	16.3	21.2	22.3	23.2
W. LONG (DEG)	123	123	124	124
(MIN)	47.3	53.8	9.5	13.9
FINISH N. LAT. (DEG)	49	49	49	49
(MIN)	13.9	22.4	23.0	23.9
W. LONG (DEG)	123	123	124	124
(MIN)	40.3	56.8	13.8	10.3
HAUL DISTANCE (KM)	9.6	4.3	5.4	3.5
(N MI)	5.2	2.3	2.9	1.9
DIRECTION (DEG.TRUE)	117	301	281	59
BOTTOM DEPTH (M)	413- 395	422- 406	316- 340	322- 271
(FM)	226- 216	231- 222	173- 186	176- 148
MODAL DEPTH (M)	404	416	330	278
NET/GEAR DEPTH (M)	91- 91	192- 192	238- 238	110- 110
(FM)	50- 50	105- 105	130- 130	60- 60
MODAL NET DEPTH (M)	91	192	238	110
GEAR TYPE	221	221	221	221
TOTAL CATCH (KG)	367	49	103	226
REMARKS	USABLE	USABLE	USABLE	USABLE
TARGET	TOP LSC	MID LSC	BOT MSC	TOP HSC
SOUNDER SUMMARY DEPTH (M)	LSP 91-110 LP 110-146 MSC 183-256	LP 9-37; 128-165 LSC 165-238 VLSC 238 -BOT	LP @37; 110-165 MSC 187-256 LSC 256 -BOT	HSP 91-128 P 128-165 MSP 165-201 LSC 201 -BOT

APPENDIX TABLE 2 (CONTINUED)

HAUL NUMBER	5	6	7	8
DATE	APR 20	APR 21	APR 21	APR 21
PACIFIC HAKE	4	38	64	212
WALLEYE POLLOCK	249	3	1	10
PACIFIC COD	..	..	..	..
NORTHERN SMOOTHTONGUE	..	..	..	..
CURLFIN SOLE	..	..	..	..
ENGLISH SOLE	..	..	..	..
SEB. ALASCANUS	..	..	..	..
BROWN CAT SHARK	..	1	..	..
RATFISH	..	..	..	..
SKATES	..	..	..	..
SPINY DOGFISH	114	7	38	4
SQUID	..	..	..	..
GLASS SHRIMP	..	T	..	..
TOTAL CATCH (KG)	367	49	103	226

APPENDIX TABLE 2 (CONTINUED)

HAUL NUMBER	9	10	11	12
DATE	APR 21	APR 22	APR 22	APR 22
AREA (LOCALITY)	QUAL-P	C LAZO	C LAZO	C LAZO
START TIME PST)	15:06	8:30	10:12	14:10
DURATION (MIN)	49	30	45	53
START N. LAT. (DEG)	49	49	49	49
(MIN)	23.5	45.8	46.1	42.0
W. LONG (DEG)	124	124	124	124
(MIN)	14.2	46.2	46.6	41.5
FINISH N. LAT. (DEG)	49	49	49	49
(MIN)	24.3	44.2	44.2	43.7
W. LONG (DEG)	124	124	124	124
(MIN)	9.7	44.6	44.4	44.2
HAUL DISTANCE (KM)	5.6	3.5	4.6	4.4
(N MI)	3.0	1.9	2.5	2.4
DIRECTION (DEG.TRUE)	74	128	135	315
BOTTOM DEPTH (M)	310- 274	358- 342	358- 346	300- 336
(FM)	170- 150	196- 187	196- 189	164- 184
MODAL DEPTH (M)	293	350	352	318
NET/GEAR DEPTH (M)	146- 146	256- 256	110- 110	238- 238
(FM)	80- 80	140- 140	60- 60	130- 130
MODAL NET DEPTH (M)	146	256	110	238
GEAR TYPE	221	221	221	221
TOTAL CATCH (KG)	59	59	103	192
REMARKS	USABLE	USABLE	USABLE	USABLE NET TRANSDUCER NOT WORKING
TARGET	MID P	TOP HSC	BOT LSP	
SOUNDER SUMMARY DEPTH (M)	SAME AS SET 8	LSP 91-119 HP 146-238 M-HSC 247 -302	SAME AS SET 10	LP 128-155 MSC 238-274 LSC 274 -BOT

APPENDIX TABLE 2 (CONTINUED)

HAUL NUMBER	9	10	11	12
DATE	APR 21	APR 22	APR 22	APR 22
PACIFIC HAKE	34	29	6	27
WALLEYE POLLOCK	3	5	76	142
PACIFIC COD	..	..	..	..
NORTHERN SMOOTHTONGUE	..	T	..	..
CURLFIN SOLE	..	..	..	..
ENGLISH SOLE	..	..	..	..
SEB. ALASCANUS	..	..	..	..
BROWN CAT SHARK	..	1	..	1
RATFISH	..	..	..	..
SKATES	..	..	..	..
SPINY DOGFISH	22	24	20	21
SQUID	..	..	1	1
GLASS SHRIMP	..	T	..	..
TOTAL CATCH (KG)	59	59	103	192

APPENDIX TABLE 2 (CONTINUED)

HAUL NUMBER		13	14	15	16
DATE		APR 22	APR 23	APR 23	APR 23
AREA (LOCALITY)		GRNT R	THRM I	THRM I	THRM I
START TIME	PST)	18:00	8:31	10:13	13:12
DURATION	(MIN)	32	30	30	30
START N. LAT.	(DEG)	49	49	49	49
	(MIN)	52.6	29.4	27.4	18.3
W. LONG	(DEG)	125	124	124	123
	(MIN)	1.0	5.3	3.5	43.3
FINISH N. LAT.	(DEG)	49	49	49	49
	(MIN)	51.8	27.8	26.0	19.7
W. LONG	(DEG)	124	124	124	123
	(MIN)	58.7	4.0	1.7	45.5
HAUL DISTANCE	(KM)	3.1	3.3	3.3	3.7
	(N MI)	1.7	1.8	1.8	2.0
DIRECTION	(DEG. TRUE)	110	152	140	315
BOTTOM DEPTH	(M)	241- 269	417- 413	393- 404	316- 318
	(FM)	132- 147	228- 226	215- 221	173- 174
MODAL DEPTH	(M)	256	415	398	317
NET/GEAR DEPTH	(M)	101- 101	183- 183	210- 210	238- 238
	(FM)	55- 55	100- 100	115- 115	130- 130
MODAL NET DEPTH	(M)	101	183	210	238
GEAR TYPE		221	221	221	221
TOTAL CATCH	(KG)	99	50	43	391
REMARKS		USABLE	USABLE	USABLE	USABLE
		SAME AS	SAME AS	SAME AS	REPAIRED
TARGET		SET 12	SET 12	SET 12	MID HSC
SOUNDER SUMMARY DEPTH (M)		HP 73-101 LSP 73-101 HP 110-201; 210-BOT	MP 0-37; 91-183 HSC 192-210 MSC 220-265	LP 9-37 MP 110-165 HSC 183-220 MSC 220-274	LP 18-37 MSP 110-165 LP 119-146 HSC 173-256 MSC 256-BOT

APPENDIX TABLE 2 (CONTINUED)

HAUL NUMBER	13	14	15	16
DATE	APR 22	APR 23	APR 23	APR 23
PACIFIC HAKE	33	39	27	355
WALLEYE POLLOCK	19	2	2	3
PACIFIC COD	..	..	..	..
NORTHERN SMOOTHTONGUE	..	..	..	T
CURLFIN SOLE	..	..	..	..
ENGLISH SOLE	..	..	..	..
SEB. ALASCANUS	..	..	..	..
BROWN CAT SHARK	..	1	1	2
RATFISH	..	..	..	..
SKATES	..	..	..	..
SPINY DOGFISH	47	7	13	31
SQUID	..	1	..	..
GLASS SHRIMP	..	..	..	T
TOTAL CATCH (KG)	99	50	43	391

APPENDIX TABLE 2 (CONTINUED)

HAUL NUMBER		17	18	19	20
DATE		APR 23	APR 24	APR 24	APR 24
AREA (LOCALITY)		HAL BK	NANOOS	NANOOS	NANOOS
START TIME	PST)	14:47	9:08	10:29	12:30
DURATION	(MIN)	30	30	30	45
START N. LAT.	(DEG)	49	49	49	49
	(MIN)	18.5	17.7	18.1	18.6
W. LONG	(DEG)	123	123	123	123
	(MIN)	44.3	50.0	52.7	52.4
FINISH N. LAT.	(DEG)	49	49	49	49
	(MIN)	19.2	18.2	17.4	17.7
W. LONG	(DEG)	123	123	123	123
	(MIN)	46.2	51.9	50.2	49.7
HAUL DISTANCE	(KM)	2.6	2.4	3.3	4.3
	(N MI)	1.4	1.3	1.8	2.3
DIRECTION (DEG.TRUE)		301	290	111	117
BOTTOM DEPTH	(M)	318- 353	404- 421	419- 417	424- 433
	(FM)	174- 193	221- 230	229- 228	232- 237
MODAL DEPTH	(M)	336	412	418	431
NET/GEAR DEPTH	(M)	201- 201	183- 183	210- 210	110- 110
	(FM)	110- 110	100- 100	115- 115	60- 60
MODAL NET DEPTH	(M)	201	183	210	110
GEAR TYPE		221	221	221	221
TOTAL CATCH	(KG)	87	50	48	11
REMARKS		USABLE	USABLE	USABLE	USABLE
TARGET		TOP HSC	MID HSC	BOT HSC	TOP LP
SOUNDER SUMMARY DEPTH (M)		SAME AS SET 16	LSP 73-110 LP 110-146 HSC 174-201 LSC 220-274	SAME AS SET 18	SAME AS SET 18

APPENDIX TABLE 2 (CONTINUED)

HAUL NUMBER	17	18	19	20
DATE	APR 23	APR 24	APR 24	APR 24
PACIFIC HAKE	40	37	35	1
WALLEYE POLLOCK	4	2	1	9
PACIFIC COD	..	..	..	..
NORTHERN SMOOTHTONGUE	..	..	..	..
CURLFIN SOLE	..	..	..	..
ENGLISH SOLE	..	..	1	..
SEB. ALASCANUS	..	..	..	..
BROWN CAT SHARK	1	2	1	..
RATFISH	..	..	..	..
SKATES	..	..	..	..
SPINY DOGFISH	42	9	10	1
SQUID	..	..	..	..
GLASS SHRIMP	..	..	..	..
TOTAL CATCH (KG)	87	50	48	11

Footnotes to Appendix tables 1 and 2.

Area (locality):
GABR I = Gabriola Island
S H SD = South Howe Sound
C ROGR = Cape Roger Curtis
E MAYN = East Mayne Island
ACT PS = Active Pass
POR PS = Porlier Pass
NANOOS = Nanoose
SWN CH = Swanson Channel
SAT CH = Satellite Channel
STU CH = Stuart Channel
TRN CH = Trincomali Channel
THRN I = Thormanby Island
MAL ST = Malaspina Strait
C LAZO = Cape Lazo
BUTE = Bute Inlet
GRNT R = Grant Reef
QUAL P = Qualicum to Parksville

Time Start: Pacific standard time

Type of Gear:
221 = Canadian Diamond 5-B midwater trawl
105: = Shrimp bottom trawl

Total catch: Expressed in kilograms. T = trace = <1 kg.

Remarks: Usable haul

Sounder Summary: Depths expressed in meters (M).
VLSP = Very light spotting layer
LSP = Light spotting layer
MSP = Medium spotting layer
P = Plankton layer
LP = Light plankton layer
MP = Medium plankton layer
VLSC = Very light scatter layer
LSC = Light scatter layer
LMSC = Light medium scatter layer
MSC = Medium scatter layer
MHSC = Medium to heavy scatter layer
HSC = Heavy scatter layer

Footnotes to Appendix tables 1 and 2 (cont'd)

	February	April
Area	Density estimate/ depth m (fath)	Density estimate/ depth m (fath)
Mitlenatch Is.	Lsp 91-110 (50-60)	Lsp 73-101 (40-55)
	P 137-150 (75-82)	Hp 73-101 (40-55)
	M-Hsc 174-220 (95-120)	Hp 110-210 (60-110)
Sabine Ch.	Lsp 91-110 (50-60)	Lsp 70-110 (39-60)
	Hp 137-210 (75-115)	Hp 110-140 (60-76)
		Mp 200-330 (120-180)
Lasqueti Is.	Lsp 91-128 (50-70)	Hsp 91-128 (50-70)
	P 124-154 (68-84)	Lp 110-165 (60-90)
	Lsc 183-250 (100-138)	Msc 187-256 (102-140)
Malaspina St.	Lsp 60-80 (33-44)	Lsp 40-90 (22-50)
	Mp 60-120 (33-66)	Lp 90-190 (50-104)
	M-Hsc 160-200 (88-100)	Msc 190-240 (104-112)
	Lsc 200-256 (100-140)	Lsc 240-300 (112-164)
Halibut Bank	Lsp 55-101 (30-55)	Lsp 73-110 (40-60)
	P 110-135 (60-74)	Hsp 110-165 (60-90)
	Hsc 164-238 (90-130)	Hsc 174-256 (95-140)
	Lsc 238-329 (130-180)	Msc 220-330 (120-180)
Roberts Bank	VLp 91-101 (50-55)	Lsp 60-120 (33-66)
	Msc 110-183 (60-100)	Msp 140-150 (77-82)
	Msc 238-274 (130-150)	Msc 160-220 (88-120)
		Lsc 220-300 (120-164)

Appendix table 3. Common and scientific names of fish species captured.

G.B. REED, February 7-28 and April 18-24, 1983.

Common name	Scientific name
Pacific hake	Merluccius productus
Walleye pollock	Theragra chalcogramma
Spiny dogfish	Squalus acanthias
American shad	Alosa sapidissima
Bigfin eelpout	Aprodon cortezianus
Chinook salmon	Oncorhynchus tshawytscha
Eelpouts	Zoarcidae (Family)
Eulachon	Thaleichthys pacificus
Lingcod	Ophiodon elongatus
Pacific cod	Gadus macrocephalus
Pacific herring	Clupea harengus pallasi
Pacific tomcod	Microgadus proximus
Plainfin midshipman	Porichthys notatus
Sablefish	Anoplopoma fimbria
Shiner perch	Cymatogaster aggregata
Northern smoothtongue	Leuroglossus stilbius schmidti
Brown cat shark	Apristurus brunneus
Ratfish	Hydrolagus colliei
Skates	Rajidae (Family)
Greenstriped rockfish	Sebastes elongatus
Yellowtail rockfish	Sebastes flavidus
Quillback rockfish	Sebastes maliger
Canary rockfish	Sebastes pinniger
Splitnose rockfish	Sebastes diploproa
Shortspine thornyhead	Sebastolobus alascanus
English sole	Parophrys vetulus
Flathead sole	Hippoglossoides elassodon
Rex sole	Glyptocephalus zachirus
Rock sole	Lepidopsetta bilineata
Slender sole	Lyopsetta exilis
Curlfin sole	Pleuronichthys decurrens
Starry flounder	Platichthys stellatus

Appendix table 4. Pacific hake length frequency. G.B. REED, February 7-28, 1983.

Set no.	1			2			4			5		
Fork length (cm)	M	F	T	M	F	T	M	F	T	M	F	T
9	-	-	-	-	1	1	-	-	-	-	-	-
10	-	-	2	1	0	1	-	-	-	-	-	-
11	-	-	0	2	2	4	-	-	-	-	1	1
12	-	-	1	2	1	3	-	-	-	-	0	0
13	-	1	1	0	0	0	-	-	-	-	0	0
14	-	0	0	0	0	0	-	-	-	1	0	1
15	-	0	0	0	0	0	-	-	-	0	0	0
16	-	0	0	0	0	0	-	-	-	0	0	0
17	1	1	2	0	0	0	-	-	-	1	1	2
18	1	0	1	0	0	0	1	2	3	0	1	1
19	1	3	4	0	0	0	2	6	8	0	0	0
20	4	2	6	0	0	0	1	6	7	1	2	3
21	3	6	9	0	0	0	3	5	8	1	3	4
22	6	12	18	0	1	1	5	12	17	0	1	1
23	3	6	9	0	0	0	4	5	9	1	1	2
24	5	3	8	0	0	0	3	4	7	0	3	3
25	4	1	5	0	0	0	2	3	5	1	1	2
26	0	2	2	0	0	0	3	2	5	1	1	2
27	2	2	4	0	0	0	1	4	5	0	0	0
28	1	2	3	0	0	0	0	3	3	0	0	0
29	3	1	4	0	0	0	2	1	3	0	1	1
30	3	1	4	0	0	0	1	2	3	0	1	1
31	2	2	4	0	0	0	3	1	4	1	2	3
32	1	1	2	0	0	0	3	3	6	0	1	1
33	1	3	4	0	0	0	1	2	3	0	2	2
34	2	0	2	0	0	0	2	2	4	0	0	0
35	4	3	7	0	0	0	6	3	9	0	0	0
36	3	1	4	0	0	0	1	1	2	0	1	1
37	10	4	14	0	0	0	2	1	3	0	0	0
38	15	3	18	0	0	0	0	0	0	0	0	0
39	20	8	28	0	0	0	0	2	2	1	0	1
40	13	6	19	0	0	0	0	1	1	0	0	0
41	10	11	21	0	1	1	2	0	2	1	1	2
42	11	6	17	0	0	0	4	3	7	0	1	1
43	16	7	23	2	0	2	2	3	5	3	0	3
44	7	6	13	2	0	2	6	3	9	4	2	6
45	3	3	6	-	2	2	1	4	5	3	3	6
46	3	2	5	-	1	1	3	5	8	-	6	6
47	0	3	3	-	1	1	-	5	5	-	6	6
48	1	0	1	-	1	1	-	2	2	-	4	4
49	-	2	2	-	1	1	-	2	2	-	1	1
50	-	1	1	-	-	-	-	1	1	-	-	-
51	-	-	-	-	-	-	-	0	0	-	-	-

Appendix table 4 (cont'd)

Set no.	1			2			4			5		
Fork length (cm)	M	F	T	M	F	T	M	F	T	M	F	T
52	-	-	-	-	-	-	-	0	0	-	-	-
53	-	-	-	-	-	-	-	0	0	-	-	-
54	-	-	-	-	-	-	-	0	0	-	-	-
55	-	-	-	-	-	-	-	0	0	-	-	-
56	-	-	-	-	-	-	-	0	0	-	-	-
57	-	-	-	-	-	-	-	0	0	-	-	-
58	-	-	-	-	-	-	-	0	0	-	-	-
59	-	-	-	-	-	-	-	0	0	-	-	-
60	-	-	-	-	-	-	-	1	1	-	-	-
61	-	-	-	-	-	-	-	-	-	-	-	-
62	-	-	-	-	-	-	-	-	-	-	-	-
63	-	-	-	-	-	-	-	-	-	-	-	-
64	-	-	-	-	-	-	-	-	-	-	-	-
65	-	-	-	-	-	-	-	-	-	-	-	-
66	-	-	-	-	-	-	-	-	-	-	-	-
67	-	-	-	-	-	-	-	-	-	-	-	-
68	-	-	-	-	-	-	-	-	-	-	-	-
69	-	-	-	-	-	-	-	-	-	-	-	-
70	-	-	-	-	-	-	-	-	-	-	-	-
71	-	-	-	-	-	-	-	-	-	-	-	-
72	-	-	-	-	-	-	-	-	-	-	-	-
73	-	-	-	-	-	-	-	-	-	-	-	-
74	-	-	-	-	-	-	-	-	-	-	-	-
75	-	-	-	-	-	-	-	-	-	-	-	-
76	-	-	-	-	-	-	-	-	-	-	-	-
77	-	-	-	-	-	-	-	-	-	-	-	-
78	-	-	-	-	-	-	-	-	-	-	-	-
79	-	-	-	-	-	-	-	-	-	-	-	-
80	-	-	-	-	-	-	-	-	-	-	-	-
81	-	-	-	-	-	-	-	-	-	-	-	-
82	-	-	-	-	-	-	-	-	-	-	-	-
83	-	-	-	-	-	-	-	-	-	-	-	-
84	-	-	-	-	-	-	-	-	-	-	-	-
85	-	-	-	-	-	-	-	-	-	-	-	-
86	-	-	-	-	-	-	-	-	-	-	-	-
87	-	-	-	-	-	-	-	-	-	-	-	-
88	-	-	-	-	-	-	-	-	-	-	-	-
89	-	-	-	-	-	-	-	-	-	-	-	-
Total	159	115	277	9	12	21	64	100	164	20	47	67

Appendix table 4 (cont'd)

Set no. Fork length (cm)	6			7			8			9		
	M	F	T	M	F	T	M	F	T	M	F	T
9	-	-	-	-	-	-	-	-	-	-	-	-
10	1	1	2	1	-	1	-	-	-	-	-	-
11	2	2	4	0	1	1	-	-	-	-	-	-
12	4	4	8	0	1	1	-	-	-	-	-	-
13	1	0	1	1	0	1	1	-	1	-	-	-
14	1	0	1	0	0	0	0	-	0	-	-	-
15	1	0	1	0	0	0	0	-	0	-	-	-
16	0	0	0	0	0	0	0	-	0	-	-	-
17	1	0	1	0	0	0	0	-	0	-	-	-
18	4	2	6	0	1	1	0	-	0	1	-	1
19	7	2	9	2	2	4	0	-	0	0	-	0
20	8	6	14	1	0	1	1	2	3	0	-	0
21	6	10	16	2	0	2	1	2	3	0	-	0
22	8	14	22	2	2	4	0	0	0	0	-	0
23	4	2	6	0	2	2	0	1	1	0	-	0
24	2	4	6	1	0	1	0	0	0	0	-	0
25	1	2	3	1	0	1	0	0	0	0	-	0
26	0	2	2	0	0	0	0	0	0	0	-	0
27	0	0	0	0	0	0	0	0	0	0	-	0
28	1	0	1	0	0	0	0	0	0	0	-	0
29	0	1	1	0	0	0	0	0	0	0	-	0
30	0	0	0	0	0	0	0	0	0	0	-	0
31	0	0	0	0	0	0	0	0	0	0	-	0
32	1	0	1	0	0	0	0	0	0	0	-	0
33	0	2	2	0	0	0	0	0	0	1	-	1
34	0	1	1	0	0	0	0	0	0	0	-	0
35	1	0	1	0	0	0	0	0	0	0	-	0
36	1	0	1	0	0	0	0	0	0	0	-	0
37	0	1	1	1	0	1	0	0	0	0	1	1
38	2	0	2	1	0	1	0	0	0	3	0	3
39	3	2	5	4	0	4	2	0	2	8	1	9
40	4	1	5	3	0	3	3	1	4	7	1	8
41	3	4	7	5	1	6	1	1	2	12	4	16
42	5	7	12	6	2	8	7	0	7	8	6	14
43	3	10	13	21	0	21	8	2	10	16	6	22
44	9	8	17	19	2	21	13	2	15	15	8	23
45	6	10	16	25	8	33	8	3	11	12	4	16
46	6	13	19	15	6	21	4	2	6	7	3	10
47	1	8	9	7	6	13	1	2	3	1	6	7
48	3	2	5	4	2	6	4	0	4	1	4	5
49	-	1	1	1	2	3	0	0	0	-	2	2
50	-	0	0	1	3	4	1	1	2	-	1	1
51	-	2	2	-	2	2	-	-	-	-	3	3

Appendix table 4 (cont'd)

Set no. Fork length (cm)	6			7			8			9		
	M	F	T	M	F	T	M	F	T	M	F	T
52	-	0	0	-	1	1	-	-	-	-	1	1
53	-	0	0	-	2	2	-	-	-	-	2	2
54	-	0	0	-	-	-	-	-	-	-	0	0
55	-	1	1	-	-	-	-	-	-	-	0	0
56	-	-	-	-	-	-	-	-	-	-	1	1
57	-	-	-	-	-	-	-	-	-	-	0	0
58	-	-	-	-	-	-	-	-	-	-	0	0
59	-	-	-	-	-	-	-	-	-	-	0	0
60	-	-	-	-	-	-	-	-	-	-	0	0
61	-	-	-	-	-	-	-	-	-	-	0	0
62	-	-	-	-	-	-	-	-	-	-	1	1
63	-	-	-	-	-	-	-	-	-	-	-	-
64	-	-	-	-	-	-	-	-	-	-	-	-
65	-	-	-	-	-	-	-	-	-	-	-	-
66	-	-	-	-	-	-	-	-	-	-	-	-
67	-	-	-	-	-	-	-	-	-	-	-	-
68	-	-	-	-	-	-	-	-	-	-	-	-
69	-	-	-	-	-	-	-	-	-	-	-	-
70	-	-	-	-	-	-	-	-	-	-	-	-
71	-	-	-	-	-	-	-	-	-	-	-	-
72	-	-	-	-	-	-	-	-	-	-	-	-
73	-	-	-	-	-	-	-	-	-	-	-	-
74	-	-	-	-	-	-	-	-	-	-	-	-
75	-	-	-	-	-	-	-	-	-	-	-	-
76	-	-	-	-	-	-	-	-	-	-	-	-
77	-	-	-	-	-	-	-	-	-	-	-	-
78	-	-	-	-	-	-	-	-	-	-	-	-
79	-	-	-	-	-	-	-	-	-	-	-	-
80	-	-	-	-	-	-	-	-	-	-	-	-
81	-	-	-	-	-	-	-	-	-	-	-	-
82	-	-	-	-	-	-	-	-	-	-	-	-
83	-	-	-	-	-	-	-	-	-	-	-	-
84	-	-	-	-	-	-	-	-	-	-	-	-
85	-	-	-	-	-	-	-	-	-	-	-	-
86	-	-	-	-	-	-	-	-	-	-	-	-
87	-	-	-	-	-	-	-	-	-	-	-	-
88	-	-	-	-	-	-	-	-	-	-	-	-
89	-	-	-	-	-	-	-	-	-	-	-	-
Total	100	125	225	124	46	170	55	19	74	92	55	147

Appendix table 4 (cont'd)

Set no. Fork length (cm)	10			11			12			13		
	M	F	T	M	F	T	M	F	T	M	F	T
9	-	-	-	-	-	-	-	-	-	-	-	-
10	-	-	-	-	1	1	-	-	-	-	-	-
11	-	-	-	-	0	0	-	-	-	-	-	-
12	-	-	-	-	0	0	-	-	-	-	-	-
13	-	-	-	-	1	1	-	-	-	-	-	-
14	-	-	-	-	0	0	-	-	-	-	-	-
15	-	-	-	-	0	0	-	-	-	-	-	-
16	-	-	-	-	0	0	-	-	-	-	-	-
17	-	-	-	1	0	1	-	-	-	-	-	-
18	-	1	1	2	0	2	-	-	-	-	-	-
19	2	2	4	3	2	5	-	-	-	-	2	2
20	1	1	2	2	2	4	-	-	-	1	1	2
21	0	1	1	3	4	7	-	-	-	2	2	4
22	0	4	4	2	11	13	-	-	-	1	4	5
23	1	1	2	6	8	14	-	-	-	0	1	1
24	0	1	1	0	6	6	-	-	-	0	5	5
25	1	0	1	0	1	1	-	-	-	1	3	4
26	1	0	1	0	4	4	-	-	-	1	1	2
27	0	0	0	1	3	4	-	-	-	0	1	1
28	0	0	0	0	2	2	-	-	-	0	0	0
29	0	0	0	0	3	3	-	-	-	3	2	5
30	0	0	0	3	1	4	-	-	-	1	1	2
31	0	0	0	2	5	7	-	-	-	2	4	6
32	0	0	0	3	0	3	-	-	-	4	0	4
33	0	0	0	6	1	7	-	-	-	4	3	7
34	3	0	3	3	2	5	-	-	-	3	0	3
35	1	1	2	5	3	8	-	-	-	4	1	5
36	1	0	1	14	2	16	-	-	-	2	3	5
37	4	0	4	16	2	18	-	-	-	3	9	12
38	7	1	8	29	5	34	-	-	-	18	9	27
39	16	1	17	25	13	38	-	-	-	18	18	36
40	22	6	28	37	15	52	1	-	1	17	25	42
41	23	12	35	28	16	44	0	-	0	12	25	37
42	18	13	31	12	11	23	0	1	1	8	16	24
43	17	11	28	12	8	20	0	1	1	7	12	19
44	11	3	14	10	11	22	3	2	5	8	15	23
45	8	4	12	8	5	13	-	1	1	4	11	15
46	4	8	12	3	4	7	-	5	5	5	9	14
47	4	4	8	2	5	7	-	1	1	0	10	10
48	0	5	5	-	1	1	-	2	2	0	3	3
49	1	1	2	-	1	1	-	1	1	0	3	3
50	-	0	0	-	0	0	-	0	0	1	1	2
51	-	2	2	-	1	1	-	1	1	-	-	-

Appendix table 4 (cont'd)

Set no. Fork length (cm)	10			11			12			13		
	M	F	T	M	F	T	M	F	T	M	F	T
52	-	0	0	-	0	0	-	0	0	-	-	-
53	-	1	1	-	1	1	-	1	1	-	-	-
54	-	0	0	-	-	-	-	-	-	-	-	-
55	-	0	0	-	-	-	-	-	-	-	-	-
56	-	0	0	-	-	-	-	-	-	-	-	-
57	-	0	0	-	-	-	-	-	-	-	-	-
58	-	0	0	-	-	-	-	-	-	-	-	-
59	-	0	0	-	-	-	-	-	-	-	-	-
60	-	0	0	-	-	-	-	-	-	-	-	-
61	-	0	0	-	-	-	-	-	-	-	-	-
62	-	0	0	-	-	-	-	-	-	-	-	-
63	-	0	0	-	-	-	-	-	-	-	-	-
64	-	0	0	-	-	-	-	-	-	-	-	-
65	-	0	0	-	-	-	-	-	-	-	-	-
66	-	0	0	-	-	-	-	-	-	-	-	-
67	-	1	1	-	-	-	-	-	-	-	-	-
68	-	-	-	-	-	-	-	-	-	-	-	-
69	-	-	-	-	-	-	-	-	-	-	-	-
70	-	-	-	-	-	-	-	-	-	-	-	-
71	-	-	-	-	-	-	-	-	-	-	-	-
72	-	-	-	-	-	-	-	-	-	-	-	-
73	-	-	-	-	-	-	-	-	-	-	-	-
74	-	-	-	-	-	-	-	-	-	-	-	-
75	-	-	-	-	-	-	-	-	-	-	-	-
76	-	-	-	-	-	-	-	-	-	-	-	-
77	-	-	-	-	-	-	-	-	-	-	-	-
78	-	-	-	-	-	-	-	-	-	-	-	-
79	-	-	-	-	-	-	-	-	-	-	-	-
80	-	-	-	-	-	-	-	-	-	-	-	-
81	-	-	-	-	-	-	-	-	-	-	-	-
82	-	-	-	-	-	-	-	-	-	-	-	-
83	-	-	-	-	-	-	-	-	-	-	-	-
84	-	-	-	-	-	-	-	-	-	-	-	-
85	-	-	-	-	-	-	-	-	-	-	-	-
86	-	-	-	-	-	-	-	-	-	-	-	-
87	-	-	-	-	-	-	-	-	-	-	-	-
88	-	-	-	-	-	-	-	-	-	-	-	-
89	-	-	-	-	-	-	-	-	-	-	-	-
Total	146	85	231	238	161	400	4	16	20	130	200	330

Appendix table 4 (cont'd)

Set no. Fork length (cm)	14			15			16			19		
	M	F	T	M	F	T	M	F	T	M	F	T
9	-	-	-	-	-	-	-	-	-	-	-	-
10	-	-	-	-	-	-	-	1	1	-	-	-
11	-	1	1	-	1	1	2	2	4	-	-	-
12	-	0	0	-	3	3	0	4	4	-	-	-
13	-	0	0	-	0	0	0	0	0	-	-	-
14	-	0	0	-	0	0	0	0	0	-	-	-
15	-	0	0	-	0	0	0	0	0	-	-	-
16	-	0	0	-	0	0	0	0	0	1	-	1
17	1	0	1	2	2	4	0	2	2	0	-	0
18	1	0	1	2	0	2	0	1	1	1	1	2
19	2	1	3	4	1	5	0	1	1	2	0	2
20	2	6	8	5	5	10	3	0	3	5	3	8
21	9	7	16	12	12	24	0	0	0	5	7	12
22	2	8	10	6	9	15	2	1	3	7	9	16
23	5	3	8	5	4	9	0	0	0	9	11	20
24	4	2	6	4	8	12	1	1	2	6	9	15
25	3	5	8	1	3	4	0	0	0	2	1	3
26	3	2	5	1	1	2	0	0	0	3	7	10
27	2	1	3	1	2	3	0	0	0	1	3	4
28	2	3	5	1	0	1	0	0	0	0	0	0
29	0	0	0	0	0	0	0	0	0	1	3	4
30	2	3	5	3	0	3	0	0	0	1	2	3
31	1	1	2	1	0	1	1	0	1	2	2	4
32	3	2	5	1	0	1	0	0	0	2	4	6
33	1	1	2	2	3	5	1	1	2	2	4	6
34	7	0	7	1	1	2	0	0	0	2	5	7
35	0	0	0	2	3	5	0	1	1	1	4	5
36	4	4	8	1	2	3	1	0	1	5	1	6
37	2	2	4	1	2	3	0	1	1	8	1	9
38	8	7	15	11	6	17	1	0	1	21	9	30
39	13	6	19	13	4	17	2	4	6	15	6	21
40	11	9	20	18	7	25	2	3	5	24	15	39
41	10	11	21	14	5	19	7	2	9	15	6	21
42	8	5	13	13	12	25	4	4	8	10	9	19
43	9	4	13	7	4	11	5	4	9	10	10	20
44	4	2	6	14	4	18	5	2	7	2	9	11
45	3	2	5	7	4	11	3	6	9	2	7	9
46	0	3	3	1	1	2	2	2	4	5	1	6
47	2	0	2	-	3	3	1	5	6	0	4	4
48	-	0	0	-	2	2	-	4	4	1	0	1
49	-	0	0	-	1	1	-	0	0	-	0	0
50	-	1	1	-	0	0	-	0	0	-	0	0
51	-	-	-	-	1	1	-	0	0	-	2	2

Appendix table 4 (cont'd)

Set no. Fork length (cm)	14			15			16			19		
	M	F	T	M	F	T	M	F	T	M	F	T
52	-	-	-	-	0	0	-	0	0	-	0	0
53	-	-	-	-	1	1	-	0	0	-	0	0
54	-	-	-	-	-	-	-	1	1	-	0	0
55	-	-	-	-	-	-	-	-	-	-	0	0
56	-	-	-	-	-	-	-	-	-	-	1	1
57	-	-	-	-	-	-	-	-	-	-	0	0
58	-	-	-	-	-	-	-	-	-	-	0	0
59	-	-	-	-	-	-	-	-	-	-	0	0
60	-	-	-	-	-	-	-	-	-	-	0	0
61	-	-	-	-	-	-	-	-	-	-	0	0
62	-	-	-	-	-	-	-	-	-	-	0	0
63	-	-	-	-	-	-	-	-	-	-	0	0
64	-	-	-	-	-	-	-	-	-	-	0	0
65	-	-	-	-	-	-	-	-	-	-	0	0
66	-	-	-	-	-	-	-	-	-	-	0	0
67	-	-	-	-	-	-	-	-	-	-	0	0
68	-	-	-	-	-	-	-	-	-	-	0	0
69	-	-	-	-	-	-	-	-	-	-	0	0
70	-	-	-	-	-	-	-	-	-	-	0	0
71	-	-	-	-	-	-	-	-	-	-	1	1
72	-	-	-	-	-	-	-	-	-	-	-	-
73	-	-	-	-	-	-	-	-	-	-	-	-
74	-	-	-	-	-	-	-	-	-	-	-	-
75	-	-	-	-	-	-	-	-	-	-	-	-
76	-	-	-	-	-	-	-	-	-	-	-	-
77	-	-	-	-	-	-	-	-	-	-	-	-
78	-	-	-	-	-	-	-	-	-	-	-	-
79	-	-	-	-	-	-	-	-	-	-	-	-
80	-	-	-	-	-	-	-	-	-	-	-	-
81	-	-	-	-	-	-	-	-	-	-	-	-
82	-	-	-	-	-	-	-	-	-	-	-	-
83	-	-	-	-	-	-	-	-	-	-	-	-
84	-	-	-	-	-	-	-	-	-	-	-	-
85	-	-	-	-	-	-	-	-	-	-	-	-
86	-	-	-	-	-	-	-	-	-	-	-	-
87	-	-	-	-	-	-	-	-	-	-	-	-
88	-	-	-	-	-	-	-	-	-	-	-	-
89	-	-	-	-	-	-	-	-	-	-	-	-
Total	124	102	226	154	117	271	43	53	96	171	157	328

Appendix table 4 (cont'd)

Set no. Fork length (cm)	21			22			23			25		
	M	F	T	M	F	T	M	F	T	M	F	T
9	-	-	-	-	-	-	-	-	-	-	-	-
10	-	-	-	-	-	-	-	-	-	-	-	1
11	-	-	-	-	-	-	-	-	-	-	-	3
12	-	-	-	-	-	-	-	-	-	1	-	2
13	-	-	-	-	-	-	-	-	-	2	1	8
14	-	-	-	-	-	-	-	-	-	0	1	2
15	-	-	-	-	-	-	-	-	-	0	0	0
16	-	-	-	-	-	-	-	-	-	0	0	0
17	-	-	-	-	-	-	-	-	-	0	0	0
18	-	-	-	-	-	-	-	-	-	0	0	0
19	-	-	-	-	-	-	-	-	-	0	0	0
20	-	-	-	-	-	-	-	-	-	0	0	0
21	-	-	-	-	-	-	-	-	-	0	0	0
22	-	-	-	-	-	-	-	-	-	0	0	0
23	-	-	-	-	-	-	-	-	-	0	0	0
24	-	-	-	-	-	-	-	-	-	0	0	0
25	1	-	1	-	-	-	-	-	-	0	1	1
26	0	-	0	-	-	-	-	1	1	0	1	1
27	1	-	1	-	-	-	-	0	0	1	1	2
28	0	-	0	-	-	-	1	0	1	2	3	5
29	0	-	0	-	-	-	0	0	0	2	3	5
30	0	1	1	-	1	1	1	1	2	2	4	6
31	0	-	0	-	0	0	1	0	1	2	3	5
32	0	-	0	-	0	0	2	0	2	0	4	4
33	0	-	0	1	0	1	0	0	0	1	1	2
34	0	-	0	0	1	1	0	1	1	1	1	2
35	0	-	0	0	0	0	0	1	1	1	0	1
36	0	-	0	0	0	0	0	0	0	0	0	0
37	0	-	0	0	0	0	0	0	0	2	0	2
38	0	-	0	0	0	0	4	0	4	1	2	3
39	0	-	0	1	0	1	0	0	0	0	2	2
40	0	-	0	0	0	0	0	1	1	0	3	3
41	0	-	0	1	1	2	0	0	0	4	1	5
42	1	-	1	-	0	0	0	0	0	2	0	2
43	1	-	1	-	0	0	0	0	0	1	1	2
44	1	-	1	-	0	0	0	1	1	2	0	2
45	-	-	-	-	0	0	1	-	1	1	0	1
46	-	-	-	-	0	0	0	-	0	1	1	2
47	-	-	-	-	0	0	0	-	0	-	0	0
48	-	-	-	-	1	1	0	-	0	-	1	1
49	-	-	-	-	-	-	0	-	0	-	0	0
50	-	-	-	-	-	-	1	-	1	-	0	0
51	-	-	-	-	-	-	-	-	-	-	0	0

Appendix table 4 (cont'd)

Set no. Fork length (cm)	21			22			23			25		
	M	F	T	M	F	T	M	F	T	M	F	T
52	-	-	-	-	-	-	-	-	-	-	0	0
53	-	-	-	-	-	-	-	-	-	-	0	0
54	-	-	-	-	-	-	-	-	-	-	0	0
55	-	-	-	-	-	-	-	-	-	-	0	0
56	-	-	-	-	-	-	-	-	-	-	1	1
57	-	-	-	-	-	-	-	-	-	-	-	-
58	-	-	-	-	-	-	-	-	-	-	-	-
59	-	-	-	-	-	-	-	-	-	-	-	-
60	-	-	-	-	-	-	-	-	-	-	-	-
61	-	-	-	-	-	-	-	-	-	-	-	-
62	-	-	-	-	-	-	-	-	-	-	-	-
63	-	-	-	-	-	-	-	-	-	-	-	-
64	-	-	-	-	-	-	-	-	-	-	-	-
65	-	-	-	-	-	-	-	-	-	-	-	-
66	-	-	-	-	-	-	-	-	-	-	-	-
67	-	-	-	-	-	-	-	-	-	-	-	-
68	-	-	-	-	-	-	-	-	-	-	-	-
69	-	-	-	-	-	-	-	-	-	-	-	-
70	-	-	-	-	-	-	-	-	-	-	-	-
71	-	-	-	-	-	-	-	-	-	-	-	-
72	-	-	-	-	-	-	-	-	-	-	-	-
73	-	-	-	-	-	-	-	-	-	-	-	-
74	-	-	-	-	-	-	-	-	-	-	-	-
75	-	-	-	-	-	-	-	-	-	-	-	-
76	-	-	-	-	-	-	-	-	-	-	-	-
77	-	-	-	-	-	-	-	-	-	-	-	-
78	-	-	-	-	-	-	-	-	-	-	-	-
79	-	-	-	-	-	-	-	-	-	-	-	-
80	-	-	-	-	-	-	-	-	-	-	-	-
81	-	-	-	-	-	-	-	-	-	-	-	-
82	-	-	-	-	-	-	-	-	-	-	-	-
83	-	-	-	-	-	-	-	-	-	-	-	-
84	-	-	-	-	-	-	-	-	-	-	-	-
85	-	-	-	-	-	-	-	-	-	-	-	-
86	-	-	-	-	-	-	-	-	-	-	-	-
87	-	-	-	-	-	-	-	-	-	-	-	-
88	-	-	-	-	-	-	-	-	-	-	-	-
89	-	-	-	-	-	-	-	-	-	-	-	-
Total	5	1	6	3	4	7	11	6	17	29	36	76

Appendix table 4 (cont'd)

Set no. Fork length (cm)	26			27			28			30		
	M	F	T	M	F	T	M	F	T	M	F	T
9	-	-	-	-	-	-	-	-	-	-	-	-
10	-	-	-	-	-	-	-	-	-	-	-	-
11	-	-	-	-	-	-	-	-	-	-	-	-
12	-	-	-	-	-	-	-	-	2	-	-	18
13	-	1	1	-	-	2	-	2	5	-	-	52
14	-	0	0	2	1	7	1	5	22	-	-	136
15	-	0	0	0	0	2	3	5	17	-	-	178
16	1	0	1	0	0	0	2	1	10	-	-	106
17	0	0	0	0	0	0	0	0	1	-	-	27
18	0	0	0	0	0	0	0	0	0	-	-	9
19	0	0	0	0	0	0	0	0	0	-	-	0
20	0	0	0	0	0	0	0	0	0	-	-	0
21	0	0	0	0	0	0	1	0	1	-	2	2
22	0	0	0	0	0	0	1	0	1	4	2	6
23	0	0	0	0	0	0	1	0	1	4	2	6
24	2	0	2	0	1	1	0	1	1	6	4	10
25	1	0	1	0	0	0	3	0	3	10	3	13
26	1	0	1	0	0	0	3	2	5	6	11	17
27	7	0	7	2	0	2	3	3	6	13	8	21
28	4	5	9	0	2	2	4	7	11	11	7	18
29	9	12	21	3	6	9	7	6	13	6	6	12
30	11	10	21	8	9	17	7	20	27	2	3	5
31	18	10	28	6	15	21	17	22	39	1	2	3
32	18	11	29	8	11	19	4	26	30	2	0	2
33	12	14	26	5	11	16	5	18	23	4	0	4
34	14	9	23	3	10	13	5	8	13	1	0	1
35	10	1	11	6	6	12	3	6	9	0	0	0
36	14	6	20	10	9	19	2	8	10	0	0	0
37	8	2	10	13	8	21	3	3	6	1	0	1
38	13	4	17	9	10	19	4	9	13	2	1	3
39	5	7	12	10	11	21	1	7	8	0	1	1
40	5	6	11	5	2	7	0	4	4	2	1	3
41	3	1	4	1	4	5	2	2	4	3	0	3
42	1	2	3	4	3	7	1	3	4	3	3	6
43	1	1	2	1	3	4	0	1	1	9	0	9
44	2	0	2	1	0	1	8	1	9	11	2	13
45	6	1	7	4	3	7	0	2	2	22	1	23
46	3	1	4	3	0	3	0	3	3	28	0	28
47	1	1	2	4	1	5	2	3	5	16	0	16
48	2	3	5	0	0	0	0	2	2	18	1	19
49	-	1	1	1	1	2	1	0	1	7	3	10
50	-	1	1	-	1	1	-	1	1	2	0	2
51	-	0	0	-	1	1	-	3	3	2	4	6

Appendix table 4 (cont'd)

Set no. Fork length (cm)	26			27			28			30		
	M	F	T	M	F	T	M	F	T	M	F	T
52	-	0	0	-	0	0	-	1	1	0	2	2
53	-	0	0	-	0	0	-	1	1	1	1	2
54	-	1	1	-	1	1	-	-	-	0	0	0
55	-	0	0	-	0	0	-	-	-	0	2	2
56	-	0	0	-	0	0	-	-	-	1	0	1
57	-	1	1	-	1	1	-	-	-	0	0	0
58	-	1	1	-	-	-	-	-	-	0	0	0
59	-	0	0	-	-	-	-	-	-	0	0	0
60	-	0	0	-	-	-	-	-	-	1	0	1
61	-	1	1	-	-	-	-	-	-	-	1	1
62	-	-	-	-	-	-	-	-	-	-	0	0
63	-	-	-	-	-	-	-	-	-	-	0	0
64	-	-	-	-	-	-	-	-	-	-	0	0
65	-	-	-	-	-	-	-	-	-	-	1	1
66	-	-	-	-	-	-	-	-	-	-	0	0
67	-	-	-	-	-	-	-	-	-	-	1	1
68	-	-	-	-	-	-	-	-	-	-	0	0
69	-	-	-	-	-	-	-	-	-	-	0	0
70	-	-	-	-	-	-	-	-	-	-	0	0
71	-	-	-	-	-	-	-	-	-	-	1	1
72	-	-	-	-	-	-	-	-	-	-	-	-
73	-	-	-	-	-	-	-	-	-	-	-	-
74	-	-	-	-	-	-	-	-	-	-	-	-
75	-	-	-	-	-	-	-	-	-	-	-	-
76	-	-	-	-	-	-	-	-	-	-	-	-
77	-	-	-	-	-	-	-	-	-	-	-	-
78	-	-	-	-	-	-	-	-	-	-	-	-
79	-	-	-	-	-	-	-	-	-	-	-	-
80	-	-	-	-	-	-	-	-	-	-	-	-
81	-	-	-	-	-	-	-	-	-	-	-	-
82	-	-	-	-	-	-	-	-	-	-	-	-
83	-	-	-	-	-	-	-	-	-	-	-	-
84	-	-	-	-	-	-	-	-	-	-	-	-
85	-	-	-	-	-	-	-	-	-	-	-	-
86	-	-	-	-	-	-	-	-	-	-	-	-
87	-	-	-	-	-	-	-	-	-	-	-	-
88	-	-	-	-	-	-	-	-	-	-	-	-
89	-	-	-	-	-	-	-	-	-	-	-	-
Total	172	114	286	109	131	248	94	186	318	199	76	801

Appendix table 4 (cont'd)

Set no.	31			32			34			36		
Fork length (cm)	M	F	T	M	F	T	M	F	T	M	F	T
9	-	-	-	-	-	-	-	-	-	-	-	-
10	-	-	-	-	-	-	-	-	-	-	-	-
11	-	-	-	-	-	-	-	-	-	-	-	-
12	-	-	-	-	-	-	-	-	-	-	-	-
13	1	3	4	-	-	-	-	-	-	-	-	-
14	0	3	3	-	-	-	-	-	-	-	-	-
15	6	4	10	-	-	-	-	-	-	-	-	-
16	5	7	13	-	-	-	-	-	-	-	-	-
17	2	1	3	-	-	-	-	-	-	-	-	-
18	0	0	0	-	-	-	-	-	-	-	-	-
19	0	0	0	-	-	-	-	-	-	-	-	-
20	0	0	0	-	-	-	-	-	-	-	-	-
21	0	0	0	-	-	-	1	-	1	-	-	-
22	1	0	1	-	-	-	0	-	0	-	-	-
23	5	1	6	-	-	-	0	-	0	-	-	-
24	7	2	10	1	-	1	0	-	0	-	-	-
25	9	4	13	0	1	1	0	-	0	-	-	-
26	14	12	26	0	0	0	0	-	0	-	-	-
27	14	9	23	0	1	1	0	-	0	-	-	-
28	13	19	32	0	0	0	0	-	0	-	-	-
29	6	7	13	0	1	1	0	-	0	-	-	-
30	2	10	12	0	0	0	0	-	0	-	-	-
31	2	14	16	0	0	0	0	-	0	-	-	-
32	3	0	3	0	0	0	0	-	0	-	-	-
33	0	1	1	0	0	0	0	-	0	-	-	-
34	1	2	3	0	0	0	0	-	0	-	-	-
35	0	2	2	0	0	0	0	-	0	-	-	-
36	1	2	3	0	0	0	0	-	0	-	-	-
37	1	3	4	0	0	0	0	-	0	-	-	-
38	2	3	5	0	0	0	0	-	0	-	-	-
39	2	3	5	0	0	0	0	-	0	-	-	-
40	0	1	1	0	0	0	0	-	0	-	-	-
41	2	3	5	1	0	1	0	-	0	-	-	-
42	4	1	5	-	0	0	0	-	0	-	-	-
43	5	4	9	-	0	0	0	-	0	2	-	2
44	2	2	4	-	0	0	0	-	0	1	1	2
45	8	7	15	-	0	0	1	-	1	1	0	1
46	2	6	8	-	0	0	0	-	0	-	1	1
47	7	7	14	-	0	0	0	-	0	-	-	-
48	0	2	2	-	1	1	0	-	0	-	-	-
49	0	4	4	-	-	-	0	-	0	-	-	-
50	1	5	6	-	-	-	0	-	0	-	-	-
51	-	1	1	-	-	-	0	-	0	-	-	-

Appendix table 4 (cont'd)

Set no.	31			32			34			36		
Fork length (cm)	M	F	T	M	F	T	M	F	T	M	F	T
52	-	1	1	-	-	-	1	-	1	-	-	-
53	-	1	1	-	-	-	-	-	-	-	-	-
54	-	3	3	-	-	-	-	-	-	-	-	-
55	-	2	2	-	-	-	-	-	-	-	-	-
56	-	1	1	-	-	-	-	-	-	-	-	-
57	-	1	1	-	-	-	-	-	-	-	-	-
58	-	0	0	-	-	-	-	-	-	-	-	-
59	-	1	1	-	-	-	-	-	-	-	-	-
60	-	0	0	-	-	-	-	-	-	-	-	-
61	-	3	3	-	-	-	-	-	-	-	-	-
62	-	-	-	-	-	-	-	-	-	-	-	-
63	-	-	-	-	-	-	-	-	-	-	-	-
64	-	-	-	-	-	-	-	-	-	-	-	-
65	-	-	-	-	-	-	-	-	-	-	-	-
66	-	-	-	-	-	-	-	-	-	-	-	-
67	-	-	-	-	-	-	-	-	-	-	-	-
68	-	-	-	-	-	-	-	-	-	-	-	-
69	-	-	-	-	-	-	-	-	-	-	-	-
70	-	-	-	-	-	-	-	-	-	-	-	-
71	-	-	-	-	-	-	-	-	-	-	-	-
72	-	-	-	-	-	-	-	-	-	-	-	-
73	-	-	-	-	-	-	-	-	-	-	-	-
74	-	-	-	-	-	-	-	-	-	-	-	-
75	-	-	-	-	-	-	-	-	-	-	-	-
76	-	-	-	-	-	-	-	-	-	-	-	-
77	-	-	-	-	-	-	-	-	-	-	-	-
78	-	-	-	-	-	-	-	-	-	-	-	-
79	-	-	-	-	-	-	-	-	-	-	-	-
80	-	-	-	-	-	-	-	-	-	-	-	-
81	-	-	-	-	-	-	-	-	-	-	-	-
82	-	-	-	-	-	-	-	-	-	-	-	-
83	-	-	-	-	-	-	-	-	-	-	-	-
84	-	-	-	-	-	-	-	-	-	-	-	-
85	-	-	-	-	-	-	-	-	-	-	-	-
86	-	-	-	-	-	-	-	-	-	-	-	-
87	-	-	-	-	-	-	-	-	-	-	-	-
88	-	-	-	-	-	-	-	-	-	-	-	-
89	-	-	-	-	-	-	-	-	-	-	-	-
Total	128	168	298	2	4	6	3	0	3	4	2	6

Appendix table 4 (cont'd)

Set no. Fork length (cm)	38			40			41			42		
	M	F	T	M	F	T	M	F	T	M	F	T
9	-	-	1	-	-	-	-	-	-	-	-	-
10	-	-	2	-	-	-	-	-	-	-	-	-
11	-	-	2	-	-	1	-	-	-	-	-	-
12	1	1	4	-	-	0	-	-	-	-	-	-
13	0	0	1	-	-	0	-	-	-	-	-	-
14	0	0	1	-	-	0	-	-	-	-	-	-
15	0	0	0	-	-	0	-	-	-	-	-	-
16	0	0	0	-	-	0	-	-	-	-	-	-
17	2	1	3	-	-	0	-	-	-	-	-	-
18	1	1	2	-	-	0	1	-	1	2	1	3
19	5	2	7	-	-	0	0	3	3	2	1	3
20	8	6	14	-	-	0	4	1	5	2	3	5
21	8	2	10	-	-	0	1	2	3	4	4	8
22	10	5	15	-	-	0	3	3	6	8	5	13
23	10	9	19	-	-	0	6	5	11	5	5	10
24	6	5	11	-	-	0	4	4	8	5	3	8
25	4	8	12	-	-	0	1	2	3	2	2	4
26	1	0	1	-	-	0	1	0	1	5	4	9
27	2	3	5	-	-	0	0	2	2	1	2	3
28	1	3	4	-	-	0	2	0	2	1	0	1
29	0	0	0	-	-	0	0	1	1	2	0	2
30	0	0	0	-	-	0	1	4	5	2	1	3
31	3	3	6	-	-	0	2	3	5	1	0	1
32	4	1	5	-	-	0	3	2	5	0	3	3
33	5	1	6	-	-	0	2	2	4	1	1	2
34	3	2	5	-	-	0	0	4	4	4	2	6
35	1	2	3	-	-	0	3	2	5	1	4	5
36	11	2	13	-	-	0	3	6	9	3	2	5
37	12	1	13	-	-	0	10	1	11	4	1	5
38	13	5	18	-	-	0	11	6	17	9	3	12
39	20	13	33	-	-	0	12	5	17	7	4	11
40	16	15	31	-	1	1	17	11	28	8	4	12
41	21	19	40	-	1	1	11	6	17	9	12	21
42	17	8	25	6	4	10	12	8	20	10	7	17
43	5	14	19	2	3	5	5	7	12	10	7	17
44	10	14	24	1	2	3	3	3	6	6	6	12
45	4	7	11	1	1	2	3	1	4	1	4	5
46	1	7	8	2	2	4	1	3	4	2	3	5
47	-	4	4	-	1	1	0	-	0	1	3	4
48	-	2	2	-	0	0	0	-	0	-	1	1
49	-	2	2	-	1	1	0	-	0	-	1	1
50	-	0	0	-	-	-	0	-	0	-	-	-
51	-	1	1	-	-	-	0	-	0	-	-	-

Appendix table 4 (cont'd)

Set no. Fork length (cm)	38			40			41			42		
	M	F	T	M	F	T	M	F	T	M	F	T
52	-	-	-	-	-	-	0	-	0	-	-	-
53	-	-	-	-	-	-	0	-	0	-	-	-
54	-	-	-	-	-	-	0	-	0	-	-	-
55	-	-	-	-	-	-	0	-	0	-	-	-
56	-	-	-	-	-	-	0	-	0	-	-	-
57	-	-	-	-	-	-	0	-	0	-	-	-
58	-	-	-	-	-	-	0	-	0	-	-	-
59	-	-	-	-	-	-	0	-	0	-	-	-
60	-	-	-	-	-	-	0	-	0	-	-	-
61	-	-	-	-	-	-	0	-	0	-	-	-
62	-	-	-	-	-	-	0	-	0	-	-	-
63	-	-	-	-	-	-	0	-	0	-	-	-
64	-	-	-	-	-	-	0	-	0	-	-	-
65	-	-	-	-	-	-	0	-	0	-	-	-
66	-	-	-	-	-	-	0	-	0	-	-	-
67	-	-	-	-	-	-	1	-	1	-	-	-
68	-	-	-	-	-	-	-	-	-	-	-	-
69	-	-	-	-	-	-	-	-	-	-	-	-
70	-	-	-	-	-	-	-	-	-	-	-	-
71	-	-	-	-	-	-	-	-	-	-	-	-
72	-	-	-	-	-	-	-	-	-	-	-	-
73	-	-	-	-	-	-	-	-	-	-	-	-
74	-	-	-	-	-	-	-	-	-	-	-	-
75	-	-	-	-	-	-	-	-	-	-	-	-
76	-	-	-	-	-	-	-	-	-	-	-	-
77	-	-	-	-	-	-	-	-	-	-	-	-
78	-	-	-	-	-	-	-	-	-	-	-	-
79	-	-	-	-	-	-	-	-	-	-	-	-
80	-	-	-	-	-	-	-	-	-	-	-	-
81	-	-	-	-	-	-	-	-	-	-	-	-
82	-	-	-	-	-	-	-	-	-	-	-	-
83	-	-	-	-	-	-	-	-	-	-	-	-
84	-	-	-	-	-	-	-	-	-	-	-	-
85	-	-	-	-	-	-	-	-	-	-	-	-
86	-	-	-	-	-	-	-	-	-	-	-	-
87	-	-	-	-	-	-	-	-	-	-	-	-
88	-	-	-	-	-	-	-	-	-	-	-	-
89	-	-	-	-	-	-	-	-	-	-	-	-
Total	205	169	383	12	16	29	123	97	220	118	99	217

Appendix table 4 (cont'd)

Set no. Fork length (cm)	43			45			46			47		
	M	F	T	M	F	T	M	F	T	M	F	T
9	-	-	-	-	-	-	-	-	-	-	-	-
10	-	-	-	-	-	-	-	-	-	1	-	1
11	-	-	-	-	-	-	-	-	-	2	1	3
12	-	-	-	-	-	-	-	-	-	1	5	6
13	-	-	-	-	-	-	-	-	-	1	1	2
14	-	-	-	-	-	-	-	-	-	0	2	2
15	-	-	-	-	-	-	1	-	1	0	1	1
16	-	-	-	-	-	-	0	-	0	0	0	0
17	-	-	-	-	-	-	0	-	0	1	0	1
18	-	-	-	-	-	-	0	1	1	0	3	3
19	-	-	-	-	-	-	0	0	0	3	0	3
20	1	1	2	-	-	-	0	0	0	0	4	4
21	5	2	7	-	-	-	1	0	1	7	0	7
22	7	6	13	-	-	-	0	0	0	1	1	2
23	8	6	14	-	-	-	0	1	1	0	4	4
24	6	5	11	-	-	-	0	1	1	2	0	2
25	6	5	11	-	-	-	0	1	1	1	0	1
26	2	3	5	-	-	-	0	0	0	0	0	0
27	1	4	5	-	-	-	0	1	1	0	0	0
28	1	4	5	-	-	-	2	1	3	0	0	0
29	3	2	5	-	-	-	2	0	2	0	0	0
30	1	0	1	-	-	-	4	1	5	0	0	0
31	2	3	5	-	-	-	0	1	1	0	0	0
32	6	6	12	-	-	-	2	2	4	0	0	0
33	6	2	8	-	-	-	8	5	13	0	0	0
34	3	7	10	-	-	-	7	3	10	0	0	0
35	6	7	13	-	-	-	8	5	13	3	0	3
36	10	5	15	-	-	-	7	4	11	5	0	5
37	15	10	25	-	1	1	5	3	8	10	0	10
38	24	10	34	-	0	0	2	2	4	12	0	12
39	23	12	35	-	0	0	2	2	4	13	1	14
40	21	15	36	-	1	1	3	1	4	23	2	25
41	11	2	13	-	0	0	3	1	4	23	0	23
42	9	8	17	-	0	0	0	0	0	32	0	32
43	3	9	12	1	0	1	2	0	2	22	2	24
44	5	0	5	1	1	2	3	0	3	20	2	22
45	3	3	6	-	1	1	0	2	2	17	6	23
46	0	1	1	-	1	1	1	0	1	13	1	14
47	3	0	3	-	1	1	2	1	3	4	1	5
48	0	1	1	-	1	1	1	1	2	1	-	1
49	1	0	1	-	-	-	-	0	0	0	-	0
50	-	0	0	-	-	-	-	1	1	1	-	1
51	-	1	1	-	-	-	-	1	1	-	-	-

Appendix table 4 (cont'd)

Set no.	43			45			46			47		
Fork length (cm)	M	F	T	M	F	T	M	F	T	M	F	T
52	-	0	0	-	-	-	-	-	-	-	-	-
53	-	0	0	-	-	-	-	-	-	-	-	-
54	-	0	0	-	-	-	-	-	-	-	-	-
55	-	0	0	-	-	-	-	-	-	-	-	-
56	-	0	0	-	-	-	-	-	-	-	-	-
57	-	0	0	-	-	-	-	-	-	-	-	-
58	-	1	1	-	-	-	-	-	-	-	-	-
59	-	-	-	-	-	-	-	-	-	-	-	-
60	-	-	-	-	-	-	-	-	-	-	-	-
61	-	-	-	-	-	-	-	-	-	-	-	-
62	-	-	-	-	-	-	-	-	-	-	-	-
63	-	-	-	-	-	-	-	-	-	-	-	-
64	-	-	-	-	-	-	-	-	-	-	-	-
65	-	-	-	-	-	-	-	-	-	-	-	-
66	-	-	-	-	-	-	-	-	-	-	-	-
67	-	-	-	-	-	-	-	-	-	-	-	-
68	-	-	-	-	-	-	-	-	-	-	-	-
69	-	-	-	-	-	-	-	-	-	-	-	-
70	-	-	-	-	-	-	-	-	-	-	-	-
71	-	-	-	-	-	-	-	-	-	-	-	-
72	-	-	-	-	-	-	-	-	-	-	-	-
73	-	-	-	-	-	-	-	-	-	-	-	-
74	-	-	-	-	-	-	-	-	-	-	-	-
75	-	-	-	-	-	-	-	-	-	-	-	-
76	-	-	-	-	-	-	-	-	-	-	-	-
77	-	-	-	-	-	-	-	-	-	-	-	-
78	-	-	-	-	-	-	-	-	-	-	-	-
79	-	-	-	-	-	-	-	-	-	-	-	-
80	-	-	-	-	-	-	-	-	-	-	-	-
81	-	-	-	-	-	-	-	-	-	-	-	-
82	-	-	-	-	-	-	-	-	-	-	-	-
83	-	-	-	-	-	-	-	-	-	-	-	-
84	-	-	-	-	-	-	-	-	-	-	-	-
85	-	-	-	-	-	-	-	-	-	-	-	-
86	-	-	-	-	-	-	-	-	-	-	-	-
87	-	-	-	-	-	-	-	-	-	-	-	-
88	-	-	-	-	-	-	-	-	-	-	-	-
89	-	-	-	-	-	-	-	-	-	-	-	-
Total	192	141	333	2	7	9	66	42	108	219	37	256

Appendix table 4 (cont'd)

Set no. Fork length (cm)	48			49			50			51		
	M	F	T	M	F	T	M	F	T	M	F	T
9	-	-	-	-	-	-	-	-	-	-	-	-
10	-	-	-	-	-	-	-	-	-	-	-	-
11	-	-	-	-	-	-	-	1	1	-	-	-
12	1	-	1	-	-	-	1	0	1	1	1	2
13	0	1	1	-	-	-	0	0	0	0	0	0
14	0	0	0	-	-	-	0	0	0	0	0	0
15	0	1	1	-	-	-	0	0	0	0	0	0
16	0	0	0	-	-	-	0	0	0	0	0	0
17	0	0	0	-	-	-	0	0	0	0	1	1
18	0	0	0	1	-	1	0	0	0	0	1	1
19	1	1	2	2	-	2	1	2	3	4	1	5
20	2	0	2	0	8	8	1	1	2	4	3	7
21	1	0	1	2	3	5	0	2	2	8	7	15
22	0	1	1	2	3	5	2	2	4	11	7	18
23	0	0	0	0	4	4	6	4	10	4	9	13
24	2	0	2	2	2	4	2	2	4	6	4	10
25	0	0	0	0	2	2	1	2	3	8	3	11
26	3	0	3	1	1	2	1	2	3	3	0	3
27	0	1	1	3	2	5	0	1	1	5	4	9
28	1	0	1	0	0	0	1	1	2	0	4	4
29	0	0	0	0	1	1	0	0	0	3	0	3
30	0	1	1	0	2	2	0	1	1	5	2	7
31	1	0	1	1	0	1	0	1	1	2	0	2
32	0	1	1	2	1	3	1	0	1	4	3	7
33	0	0	0	3	0	3	2	2	4	1	0	1
34	0	0	0	1	1	2	0	0	0	1	2	3
35	2	0	2	4	0	4	0	1	1	3	3	6
36	5	0	5	8	0	8	4	4	8	1	2	3
37	19	0	19	13	6	19	6	2	8	3	2	5
38	17	0	17	18	2	20	5	5	10	8	2	10
39	28	0	28	9	4	13	11	5	16	4	3	7
40	29	1	30	22	9	31	8	12	20	3	3	6
41	40	5	45	20	6	26	13	11	24	5	5	10
42	30	7	37	20	9	29	9	7	16	7	14	21
43	26	0	26	15	8	23	12	10	22	7	9	16
44	19	6	25	6	6	12	7	6	13	5	8	13
45	7	6	13	3	2	5	7	5	12	4	5	9
46	10	6	16	3	5	8	0	3	3	1	4	5
47	5	4	9	1	3	4	2	2	4	3	4	7
48	2	0	2	0	4	4	0	1	1	-	3	3
49	3	2	5	1	0	1	1	-	1	-	3	3
50	0	0	0	-	1	1	-	-	-	-	0	0
51	0	0	0	-	2	2	-	-	-	-	0	0

Appendix table 4 (cont'd)

Set no. Fork length (cm)	48			49			50			51		
	M	F	T	M	F	T	M	F	T	M	F	T
52	0	1	1	-	-	-	-	-	-	-	1	1
53	0	-	0	-	-	-	-	-	-	-	-	-
54	0	-	0	-	-	-	-	-	-	-	-	-
55	0	-	0	-	-	-	-	-	-	-	-	-
56	0	-	0	-	-	-	-	-	-	-	-	-
57	0	-	0	-	-	-	-	-	-	-	-	-
58	0	-	0	-	-	-	-	-	-	-	-	-
59	0	-	0	-	-	-	-	-	-	-	-	-
60	0	-	0	-	-	-	-	-	-	-	-	-
61	0	-	0	-	-	-	-	-	-	-	-	-
62	0	-	0	-	-	-	-	-	-	-	-	-
63	0	-	0	-	-	-	-	-	-	-	-	-
64	0	-	0	-	-	-	-	-	-	-	-	-
65	0	-	0	-	-	-	-	-	-	-	-	-
66	0	-	0	-	-	-	-	-	-	-	-	-
67	0	-	0	-	-	-	-	-	-	-	-	-
68	0	-	0	-	-	-	-	-	-	-	-	-
69	0	-	0	-	-	-	-	-	-	-	-	-
70	0	-	0	-	-	-	-	-	-	-	-	-
71	0	-	0	-	-	-	-	-	-	-	-	-
72	0	-	0	-	-	-	-	-	-	-	-	-
73	0	-	0	-	-	-	-	-	-	-	-	-
74	0	-	0	-	-	-	-	-	-	-	-	-
75	0	-	0	-	-	-	-	-	-	-	-	-
76	0	-	0	-	-	-	-	-	-	-	-	-
77	0	-	0	-	-	-	-	-	-	-	-	-
78	0	-	0	-	-	-	-	-	-	-	-	-
79	0	-	0	-	-	-	-	-	-	-	-	-
80	0	-	0	-	-	-	-	-	-	-	-	-
81	0	-	0	-	-	-	-	-	-	-	-	-
82	0	-	0	-	-	-	-	-	-	-	-	-
83	0	-	0	-	-	-	-	-	-	-	-	-
84	0	-	0	-	-	-	-	-	-	-	-	-
85	0	-	0	-	-	-	-	-	-	-	-	-
86	0	-	0	-	-	-	-	-	-	-	-	-
87	0	-	0	-	-	-	-	-	-	-	-	-
88	0	-	0	-	-	-	-	-	-	-	-	-
89	1	-	1	-	-	-	-	-	-	-	-	-
Total	255	45	300	163	97	260	104	98	202	124	123	247

Appendix table 4 (cont'd)

Set no. Fork length (cm)	52			53			54			55		
	M	F	T	M	F	T	M	F	T	M	F	T
9	-	-	-	-	-	-	-	-	-	-	-	-
10	-	-	-	-	-	-	-	-	-	-	-	-
11	-	-	1	-	-	-	-	-	-	-	-	-
12	-	-	0	-	-	-	-	-	-	-	1	1
13	-	-	0	-	1	1	-	-	-	-	0	0
14	-	-	0	-	0	0	-	-	-	-	0	0
15	-	-	0	-	0	0	-	-	-	-	0	0
16	-	-	1	-	0	0	-	-	-	-	0	0
17	-	-	0	-	0	0	-	1	1	1	0	1
18	-	1	1	1	0	1	-	1	1	0	0	0
19	3	3	6	2	2	4	3	2	5	0	0	0
20	3	2	5	3	3	6	5	4	9	0	0	0
21	3	3	6	2	1	3	10	2	12	0	0	0
22	13	7	20	0	5	5	8	4	12	1	0	1
23	9	7	16	2	3	5	14	4	18	2	0	2
24	10	4	14	0	0	0	5	7	12	0	0	0
25	7	2	9	0	0	0	3	7	10	0	0	0
26	8	3	11	1	4	5	1	2	3	1	0	1
27	4	3	7	1	0	1	0	1	1	0	1	1
28	0	2	2	0	1	1	1	0	1	0	1	1
29	0	1	1	0	0	0	1	2	3	0	0	0
30	6	0	6	3	0	3	0	1	1	0	0	0
31	0	3	3	0	0	0	1	1	2	1	1	2
32	3	2	5	4	0	4	2	0	2	0	0	0
33	5	3	8	2	0	2	3	0	3	1	0	1
34	7	7	14	2	2	4	3	1	4	0	0	0
35	1	4	5	8	1	9	4	3	7	1	0	1
36	8	0	8	11	2	13	8	3	11	3	0	3
37	14	8	22	22	2	24	11	5	16	7	0	7
38	24	4	28	29	5	34	12	6	18	6	2	8
39	16	7	23	34	11	45	22	12	34	12	1	13
40	19	8	27	20	12	32	18	15	33	22	4	26
41	9	10	19	26	9	35	15	10	25	16	5	21
42	11	8	19	18	7	25	7	7	14	13	3	16
43	5	6	11	12	5	17	13	7	20	13	0	13
44	2	6	8	12	3	15	4	2	6	6	2	8
45	2	1	3	7	5	12	3	7	10	5	3	8
46	-	1	1	3	5	8	1	3	4	3	3	6
47	-	2	2	2	6	8	0	2	2	1	1	2
48	-	2	2	1	2	3	1	0	1	0	0	0
49	-	1	1	-	0	0	-	1	1	1	0	1
50	-	0	0	-	0	0	-	1	1	1	1	2
51	-	1	1	-	3	3	-	-	-	-	0	0

Appendix table 4 (cont'd)

Set no.	52			53			54			55		
Fork length (cm)	M	F	T	M	F	T	M	F	T	M	F	T
52	-	-	-	-	-	-	-	-	-	-	0	0
53	-	-	-	-	-	-	-	-	-	-	1	1
54	-	-	-	-	-	-	-	-	-	-	-	-
55	-	-	-	-	-	-	-	-	-	-	-	-
56	-	-	-	-	-	-	-	-	-	-	-	-
57	-	-	-	-	-	-	-	-	-	-	-	-
58	-	-	-	-	-	-	-	-	-	-	-	-
59	-	-	-	-	-	-	-	-	-	-	-	-
60	-	-	-	-	-	-	-	-	-	-	-	-
61	-	-	-	-	-	-	-	-	-	-	-	-
62	-	-	-	-	-	-	-	-	-	-	-	-
63	-	-	-	-	-	-	-	-	-	-	-	-
64	-	-	-	-	-	-	-	-	-	-	-	-
65	-	-	-	-	-	-	-	-	-	-	-	-
66	-	-	-	-	-	-	-	-	-	-	-	-
67	-	-	-	-	-	-	-	-	-	-	-	-
68	-	-	-	-	-	-	-	-	-	-	-	-
69	-	-	-	-	-	-	-	-	-	-	-	-
70	-	-	-	-	-	-	-	-	-	-	-	-
71	-	-	-	-	-	-	-	-	-	-	-	-
72	-	-	-	-	-	-	-	-	-	-	-	-
73	-	-	-	-	-	-	-	-	-	-	-	-
74	-	-	-	-	-	-	-	-	-	-	-	-
75	-	-	-	-	-	-	-	-	-	-	-	-
76	-	-	-	-	-	-	-	-	-	-	-	-
77	-	-	-	-	-	-	-	-	-	-	-	-
78	-	-	-	-	-	-	-	-	-	-	-	-
79	-	-	-	-	-	-	-	-	-	-	-	-
80	-	-	-	-	-	-	-	-	-	-	-	-
81	-	-	-	-	-	-	-	-	-	-	-	-
82	-	-	-	-	-	-	-	-	-	-	-	-
83	-	-	-	-	-	-	-	-	-	-	-	-
84	-	-	-	-	-	-	-	-	-	-	-	-
85	-	-	-	-	-	-	-	-	-	-	-	-
86	-	-	-	-	-	-	-	-	-	-	-	-
87	-	-	-	-	-	-	-	-	-	-	-	-
88	-	-	-	-	-	-	-	-	-	-	-	-
89	-	-	-	-	-	-	-	-	-	-	-	-
Total	192	122	316	228	100	328	179	124	303	117	30	147

Appendix table 4 (cont'd)

Set no. Fork length (cm)	Total		
	M	F	T
9	-	1	2
10	4	3	12
11	8	12	27
12	12	21	57
13	7	12	82
14	5	12	175
15	11	11	211
16	9	8	132
17	13	10	51
18	19	18	46
19	51	39	90
20	68	72	140
21	101	89	190
22	113	139	252
23	114	109	223
24	92	91	184
25	74	63	137
26	65	68	133
27	66	63	129
28	50	70	120
29	53	60	113
30	69	83	152
31	76	99	175
32	86	84	170
33	86	83	169
34	79	74	153
35	89	67	156
36	147	70	217
37	226	82	308
38	341	121	462
39	372	176	548
40	403	222	625
41	382	214	596
42	331	205	536
43	311	179	490
44	270	153	424
45	204	150	354
46	136	131	267
47	73	116	189
48	40	61	101
49	18	38	56
50	9	21	30
51	2	32	34

Appendix table 4 (cont'd)

Set no. Fork length (cm)	Total		
	M	F	T
52	1	8	9
53	1	12	13
54	0	6	6
55	0	5	5
56	1	4	5
57	0	3	3
58	0	2	2
59	0	1	1
60	1	1	2
61	0	5	5
62	0	1	1
63	0	0	0
64	0	0	0
65	0	1	1
66	0	0	0
67	1	2	3
68	0	0	0
69	0	0	0
70	0	0	0
71	0	2	2
72	0	-	0
73	0	-	0
74	0	-	0
75	0	-	0
76	0	-	0
77	0	-	0
78	0	-	0
79	0	-	0
80	0	-	0
81	0	-	0
82	0	-	0
83	0	-	0
84	0	-	0
85	0	-	0
86	0	-	0
87	0	-	0
88	0	-	0
89	1	-	1
Total	4691	3485	8777

Appendix table 5. Pacific hake length frequency. G.B. REED, April 18-24, 1983.

Set no. Fork Length (cm)	1			2			3			4		
	M	F	T	M	F	T	M	F	T	M	F	T
9	-	-	-	-	-	-	-	-	-	-	-	-
10	-	-	-	-	-	-	-	-	-	-	-	-
11	-	-	-	-	-	-	-	-	-	-	-	-
12	-	1	1	-	-	-	-	-	-	2	-	2
13	1	0	1	-	-	-	-	-	-	2	1	3
14	0	0	0	-	-	-	-	-	-	0	0	0
15	0	1	1	-	-	-	-	-	-	0	0	0
16	0	0	0	-	-	-	-	-	-	0	0	0
17	0	0	0	-	-	-	-	-	-	0	0	0
18	0	0	0	-	-	-	-	-	-	0	0	0
19	0	0	0	-	-	-	-	-	-	0	0	0
20	0	1	1	-	-	-	-	-	-	0	0	0
21	2	0	2	-	-	-	-	-	-	0	1	1
22	2	1	3	-	-	-	-	-	-	4	1	5
23	3	1	4	-	-	-	-	-	-	1	2	3
24	1	2	3	-	-	-	-	-	-	1	1	2
25	2	1	3	1	-	1	-	-	-	0	0	0
26	0	1	1	0	-	0	-	-	-	1	0	1
27	0	0	0	0	-	0	-	-	-	0	0	0
28	1	0	1	0	-	0	-	-	-	1	0	1
29	1	1	2	2	-	2	-	-	-	0	0	0
30	0	0	0	1	-	1	-	-	-	2	0	2
31	0	0	0	1	-	1	-	-	-	1	0	1
32	1	0	1	1	-	1	-	-	-	3	0	3
33	1	0	1	0	-	0	-	-	-	2	0	2
34	2	0	2	2	-	2	1	-	1	4	0	4
35	1	0	1	8	7	15	12	-	12	18	0	18
36	4	0	4	8	6	14	21	-	21	32	0	32
37	9	1	10	26	20	46	58	-	58	58	3	61
38	12	0	12	34	34	68	99	-	99	68	2	70
39	13	1	14	35	42	77	115	-	115	78	1	79
40	10	0	10	36	57	93	111	1	112	72	1	73
41	8	2	10	30	51	81	85	3	88	38	0	38
42	14	0	14	22	27	49	62	1	63	27	0	27
43	8	0	8	18	25	43	36	0	36	26	1	27
44	3	0	3	15	30	45	38	1	39	12	-	12
45	2	0	2	5	17	22	27	1	28	7	-	7
46	1	0	1	2	25	27	14	-	14	6	-	6
47	0	0	0	-	15	15	6	-	6	1	-	1
48	1	1	2	-	6	6	1	-	1	-	-	-
49	-	1	1	-	5	5	-	-	-	-	-	-
50	-	1	1	-	2	2	-	-	-	-	-	-
51	-	-	-	-	0	0	-	-	-	-	-	-

Appendix table 5 (cont'd)

Set no.	1			2			3			4		
Fork length (cm)	M	F	T	M	F	T	M	F	T	M	F	T
52	-	-	-	-	1	1	-	-	-	-	-	-
53	-	-	-	-	0	0	-	-	-	-	-	-
54	-	-	-	-	1	1	-	-	-	-	-	-
55	-	-	-	-	0	0	-	-	-	-	-	-
56	-	-	-	-	0	0	-	-	-	-	-	-
57	-	-	-	-	0	0	-	-	-	-	-	-
58	-	-	-	-	0	0	-	-	-	-	-	-
59	-	-	-	-	1	1	-	-	-	-	-	-
60	-	-	-	-	1	1	-	-	-	-	-	-
61	-	-	-	-	0	0	-	-	-	-	-	-
62	-	-	-	-	1	1	-	-	-	-	-	-
Total	103	17	120	247	374	621	686	7	693	467	14	481

Appendix table 5 (cont'd)

Set no. Fork length (cm)	6			7			8			9		
	M	F	T	M	F	T	M	F	T	M	F	T
9	-	-	-	-	-	-	-	-	-	-	-	-
10	-	-	-	-	-	-	-	-	-	-	-	-
11	-	1	1	1	-	1	-	-	-	-	-	-
12	-	1	1	0	1	1	-	-	-	2	-	2
13	1	2	3	0	0	0	-	-	-	1	1	2
14	2	0	2	0	0	0	-	-	-	1	1	2
15	1	2	3	0	0	0	-	-	-	0	0	0
16	0	0	0	0	0	0	-	-	-	0	0	0
17	0	0	0	0	0	0	-	-	-	0	0	0
18	0	0	0	0	2	2	-	-	-	0	0	0
19	0	4	4	0	0	0	-	-	-	0	0	0
20	0	2	2	0	0	0	-	-	-	0	0	0
21	1	2	3	0	1	1	-	-	-	0	0	0
22	2	2	4	0	2	2	-	-	-	0	0	0
23	1	1	2	0	1	1	-	-	-	0	0	0
24	0	0	0	1	0	1	-	-	-	0	0	0
25	0	0	0	0	1	1	-	-	-	0	0	0
26	0	0	0	0	1	1	-	-	-	0	0	0
27	0	0	0	1	0	1	-	-	-	0	0	0
28	1	0	1	0	1	1	-	-	-	0	0	0
29	0	0	0	1	0	1	-	-	-	0	0	0
30	1	0	1	0	0	0	-	-	-	0	0	0
31	1	1	2	1	0	1	-	-	-	0	0	0
32	0	0	0	0	0	0	-	-	-	0	0	0
33	3	0	3	1	0	1	-	-	-	0	0	0
34	1	0	1	1	0	1	-	-	-	0	0	0
35	1	0	1	2	0	2	-	-	-	0	0	0
36	3	0	3	4	2	6	-	-	-	0	0	0
37	4	0	4	10	3	13	-	-	-	0	0	0
38	7	1	8	18	2	20	1	-	1	0	0	0
39	6	1	7	17	5	22	1	3	4	1	2	3
40	10	2	12	13	8	21	4	5	9	1	4	5
41	15	3	18	8	7	15	9	11	20	4	5	9
42	12	1	13	10	5	15	12	17	29	5	5	10
43	7	1	8	11	5	16	19	17	36	4	7	11
44	6	3	9	10	4	14	19	28	47	7	13	20
45	2	3	5	2	3	5	12	27	39	3	6	9
46	0	1	1	2	3	5	7	37	44	-	5	5
47	1	3	4	1	4	5	2	29	31	-	5	5
48	-	1	1	-	0	0	2	14	16	-	4	4
49	-	1	1	-	1	1	-	6	6	-	0	0
50	-	1	1	-	2	2	-	3	3	-	1	1
51	-	-	-	-	2	2	-	1	1	-	-	-

Appendix table 5 (cont'd)

Set no. Fork length (cm)	6			7			8			9		
	M	F	T	M	F	T	M	F	T	M	F	T
52	-	-	-	-	1	1	-	-	-	-	-	-
53	-	-	-	-	-	-	-	-	-	-	-	-
54	-	-	-	-	-	-	-	-	-	-	-	-
55	-	-	-	-	-	-	-	-	-	-	-	-
56	-	-	-	-	-	-	-	-	-	-	-	-
57	-	-	-	-	-	-	-	-	-	-	-	-
58	-	-	-	-	-	-	-	-	-	-	-	-
59	-	-	-	-	-	-	-	-	-	-	-	-
60	-	-	-	-	-	-	-	-	-	-	-	-
61	-	-	-	-	-	-	-	-	-	-	-	-
62	-	-	-	-	-	-	-	-	-	-	-	-
Total	89	40	129	115	67	182	88	198	286	29	59	88

Appendix table 5 (cont'd)

Set no. Fork length (cm)	10			11			12			13		
	M	F	T	M	F	T	M	F	T	M	F	T
9	-	-	-	-	-	-	-	-	-	-	-	-
10	-	-	-	-	-	-	-	-	-	-	-	-
11	-	-	-	-	-	-	-	-	-	-	-	-
12	1	1	2	-	-	-	1	-	1	-	-	-
13	0	1	1	-	-	-	1	-	1	-	-	-
14	0	0	0	-	-	-	0	-	0	-	-	-
15	0	0	0	-	-	-	0	-	0	-	-	-
16	0	0	0	-	-	-	0	-	0	-	-	-
17	0	0	0	-	-	-	0	-	0	-	-	-
18	0	0	0	-	-	-	0	-	0	-	-	-
19	0	0	0	-	-	-	0	-	0	-	-	-
20	0	0	0	-	-	-	1	1	2	-	-	-
21	0	0	0	-	-	-	0	1	1	-	-	-
22	2	0	2	-	-	-	1	0	1	-	-	-
23	0	0	0	-	-	-	0	1	1	-	-	-
24	0	0	0	-	-	-	0	1	1	-	-	-
25	0	0	0	-	-	-	0	0	0	-	-	-
26	0	0	0	-	-	-	0	0	0	-	-	-
27	0	0	0	-	-	-	0	1	1	-	-	-
28	0	0	0	-	-	-	0	0	0	-	-	-
29	0	0	0	-	-	-	0	0	0	-	-	-
30	0	0	0	-	-	-	0	0	0	-	-	-
31	0	0	0	-	-	-	0	0	0	-	-	-
32	0	0	0	-	-	-	1	0	1	-	-	-
33	0	0	0	-	-	-	0	0	0	-	-	-
34	0	0	0	-	-	-	2	0	2	-	-	-
35	0	0	0	-	-	-	1	0	1	-	-	-
36	0	0	0	-	-	-	0	0	0	1	-	1
37	4	1	5	-	-	-	1	0	1	1	1	2
38	6	0	6	-	-	-	2	0	2	1	1	2
39	3	0	3	-	-	-	2	1	3	0	0	0
40	7	0	7	-	-	-	5	0	5	4	1	5
41	8	0	8	-	-	-	11	0	11	3	3	6
42	9	0	9	-	-	-	9	1	10	2	4	6
43	7	0	7	1	-	1	6	0	6	3	6	9
44	5	1	6	1	2	3	8	1	9	3	12	15
45	9	0	9	-	1	1	7	1	8	4	10	14
46	5	2	7	-	1	1	5	1	6	0	8	8
47	1	1	2	-	3	3	2	1	3	0	5	5
48	2	0	2	-	3	3	2	-	2	1	1	2
49	-	1	1	-	0	0	3	-	3	0	0	0
50	-	0	0	-	1	1	2	-	2	1	1	2
51	-	1	1	-	-	-	1	-	1	-	1	1

Appendix table 5 (cont'd)

Set no. Fork length (cm)	10			11			12			13		
	M	F	T	M	F	T	M	F	T	M	F	T
52	-	-	-	-	-	-	-	-	-	-	-	-
53	-	-	-	-	-	-	-	-	-	-	-	-
54	-	-	-	-	-	-	-	-	-	-	-	-
55	-	-	-	-	-	-	-	-	-	-	-	-
56	-	-	-	-	-	-	-	-	-	-	-	-
57	-	-	-	-	-	-	-	-	-	-	-	-
58	-	-	-	-	-	-	-	-	-	-	-	-
59	-	-	-	-	-	-	-	-	-	-	-	-
60	-	-	-	-	-	-	-	-	-	-	-	-
61	-	-	-	-	-	-	-	-	-	-	-	-
62	-	-	-	-	-	-	-	-	-	-	-	-
Total	69	9	78	2	11	13	74	11	85	24	54	78

Appendix table 5 (cont'd)

Set no. Fork length (cm)	14			15			16			17		
	M	F	T	M	F	T	M	F	T	M	F	T
9	-	-	-	-	-	-	-	-	-	-	-	-
10	1	1	2	-	-	-	-	-	-	-	-	-
11	1	4	5	1	1	2	-	-	-	-	-	-
12	2	6	10	1	2	3	-	-	-	-	-	-
13	4	2	7	0	1	1	1	-	1	1	-	1
14	0	1	2	0	0	0	0	-	0	0	2	2
15	0	0	0	0	0	0	0	-	0	0	0	0
16	0	0	0	0	0	0	0	-	0	0	0	0
17	0	0	0	0	0	0	0	-	0	0	0	0
18	0	0	0	1	0	1	0	-	0	0	0	0
19	0	0	0	0	0	0	1	-	1	0	1	1
20	8	10	18	0	0	0	0	-	0	0	0	0
21	8	6	14	2	2	4	0	-	0	1	0	1
22	13	14	27	2	2	4	0	-	0	0	0	0
23	16	13	29	2	1	3	1	-	1	0	0	0
24	11	8	19	1	1	2	1	1	2	2	1	3
25	12	5	17	3	1	4	0	1	1	0	0	0
26	7	4	11	1	0	1	0	1	1	0	0	0
27	6	2	8	1	0	1	0	0	0	0	0	0
28	3	2	5	0	0	0	0	0	0	1	0	1
29	3	1	4	2	1	3	1	0	1	0	0	0
30	2	1	3	2	0	2	0	0	0	0	0	0
31	5	2	7	1	0	1	0	1	1	1	0	1
32	7	2	9	3	1	4	0	0	0	0	0	0
33	11	2	13	5	0	5	1	1	2	0	0	0
34	2	2	4	1	3	4	4	0	4	2	0	2
35	1	2	3	3	1	4	6	3	9	1	0	1
36	1	1	2	4	0	4	13	5	18	6	0	6
37	2	1	3	7	2	9	19	22	41	8	0	8
38	4	3	7	9	1	10	21	31	52	13	0	13
39	1	2	3	5	1	6	27	28	55	10	0	10
40	4	4	8	6	1	7	33	42	75	17	0	17
41	3	1	4	2	1	3	19	32	51	15	0	15
42	1	3	4	5	1	6	9	22	31	10	0	10
43	2	3	5	2	1	3	7	18	25	8	0	8
44	2	3	5	5	-	5	6	9	15	8	0	8
45	0	2	2	2	-	2	1	9	10	6	0	6
46	3	1	4	1	-	1	0	7	7	5	0	5
47	-	2	2	0	-	0	1	7	8	2	0	2
48	-	-	-	0	-	0	-	1	1	-	0	0
49	-	-	-	1	-	1	-	2	2	-	1	1
50	-	-	-	-	-	-	-	1	1	-	-	-
51	-	-	-	-	-	-	-	0	0	-	-	-

Appendix table 5 (cont'd)

Set no. Fork length (cm)	14			15			16			17		
	M	F	T	M	F	T	M	F	T	M	F	T
52	-	-	-	-	-	-	-	1	1	-	-	-
53	-	-	-	-	-	-	-	-	-	-	-	-
54	-	-	-	-	-	-	-	-	-	-	-	-
55	-	-	-	-	-	-	-	-	-	-	-	-
56	-	-	-	-	-	-	-	-	-	-	-	-
57	-	-	-	-	-	-	-	-	-	-	-	-
58	-	-	-	-	-	-	-	-	-	-	-	-
59	-	-	-	-	-	-	-	-	-	-	-	-
60	-	-	-	-	-	-	-	-	-	-	-	-
61	-	-	-	-	-	-	-	-	-	-	-	-
62	-	-	-	-	-	-	-	-	-	-	-	-
Total	146	116	266	81	25	106	172	245	417	117	5	122

Appendix table 5 (cont'd)

Set no. Fork length (cm)	18			19			20			Total		
	M	F	T	M	F	T	M	F	T	M	F	T
9	-	-	-	-	-	-	1	-	1	1	-	1
10	-	-	-	-	-	-	0	-	0	1	1	2
11	-	1	1	-	-	-	2	-	2	5	7	12
12	-	0	0	-	-	-	3	-	3	12	12	26
13	1	0	1	-	-	-	1	-	1	14	8	23
14	0	1	1	-	-	-	0	-	0	3	5	9
15	0	0	0	-	-	-	0	-	0	1	3	4
16	0	0	0	-	-	-	0	-	0	0	0	0
17	0	0	0	-	-	-	0	-	0	0	0	0
18	0	0	0	-	-	-	0	-	0	1	2	3
19	0	0	0	-	-	-	0	-	0	1	5	6
20	0	0	0	-	-	-	0	-	0	9	14	23
21	5	1	6	-	-	-	0	-	0	19	14	33
22	1	1	2	-	-	-	0	-	0	27	23	50
23	6	0	6	-	-	-	0	-	0	30	20	50
24	1	1	2	-	-	-	0	-	0	19	16	35
25	0	0	0	-	-	-	0	-	0	18	9	27
26	2	1	3	-	1	1	0	-	0	11	9	20
27	2	1	3	-	0	0	0	-	0	10	4	14
28	0	0	0	1	0	1	0	-	0	8	3	11
29	0	0	0	0	0	0	0	-	0	10	3	13
30	1	0	1	0	0	0	0	-	0	9	1	10
31	0	0	0	0	1	1	0	-	0	11	5	16
32	0	1	1	1	0	1	0	-	0	17	4	21
33	3	1	4	1	0	1	0	-	0	28	4	32
34	2	0	2	1	0	1	0	-	0	25	5	30
35	3	0	3	2	1	3	0	-	0	59	14	73
36	4	0	4	3	0	3	0	-	0	104	14	118
37	7	0	7	3	3	6	0	-	0	217	57	274
38	8	2	10	9	1	10	0	-	0	312	78	390
39	13	1	14	7	3	10	0	-	0	334	91	425
40	13	0	13	7	5	12	1	-	1	354	131	485
41	6	2	8	8	3	11	-	-	-	272	124	396
42	10	1	11	11	1	12	-	-	-	230	89	319
43	8	2	10	4	4	8	-	-	-	177	90	267
44	4	3	7	4	1	5	-	-	-	156	111	267
45	2	2	4	1	4	5	-	-	-	92	86	178
46	2	1	3	1	3	4	-	-	-	54	95	149
47	0	0	0	1	0	1	-	-	-	18	75	93
48	1	0	1	-	2	2	-	-	-	10	33	43
49	-	1	1	-	2	2	-	-	-	4	21	25
50	-	-	-	-	1	1	-	-	-	3	14	17
51	-	-	-	-	1	1	-	-	-	1	6	7

Appendix table 5 (cont'd)

Set no. Fork length (cm)	18			19			20			Total		
	M	F	T	M	F	T	M	F	T	M	F	T
52	-	-	-	-	-	-	-	-	-	-	3	3
53	-	-	-	-	-	-	-	-	-	-	0	0
54	-	-	-	-	-	-	-	-	-	-	1	1
55	-	-	-	-	-	-	-	-	-	-	0	0
56	-	-	-	-	-	-	-	-	-	-	0	0
57	-	-	-	-	-	-	-	-	-	-	0	0
58	-	-	-	-	-	-	-	-	-	-	0	0
59	-	-	-	-	-	-	-	-	-	-	1	1
60	-	-	-	-	-	-	-	-	-	-	1	1
61	-	-	-	-	-	-	-	-	-	-	0	0
62	-	-	-	-	-	-	-	-	-	-	1	1
Total	105	24	129	65	37	102	8	0	8	2687	1313	4004

Appendix table 6. Walleye pollock length frequency. G.B. REED, February 7-28, 1983.

Set no.	1			2			3			4		
Fork length (cm)	M	F	T	M	F	T	M	F	T	M	F	T
8	-	-	-	-	-	-	-	-	-	-	-	-
9	-	-	-	-	-	-	-	-	-	-	-	-
10	-	-	-	-	-	-	-	-	-	-	-	-
11	-	-	-	-	-	-	-	-	-	-	-	-
12	-	-	-	-	-	-	-	-	-	-	-	-
13	-	-	-	-	-	-	-	-	-	-	-	-
14	-	-	-	-	-	-	-	-	-	-	-	-
15	-	-	-	-	-	-	-	-	-	-	-	-
16	-	-	-	-	-	-	-	-	-	-	-	-
17	-	-	-	-	-	-	-	-	-	-	-	-
18	-	-	-	-	-	-	-	-	-	-	-	-
19	-	-	-	-	-	-	-	-	-	-	-	-
20	-	-	-	-	-	-	-	-	-	-	-	-
21	-	-	-	-	-	-	-	-	-	-	-	-
22	-	-	-	-	-	-	-	-	-	-	-	-
23	-	-	-	-	-	-	-	-	-	-	-	-
24	-	-	-	-	-	-	-	-	-	-	-	-
25	-	-	-	-	-	-	-	-	-	-	-	-
26	-	-	-	-	-	-	-	-	-	-	-	-
27	-	-	-	-	-	-	-	-	-	-	-	-
28	-	-	-	-	-	-	-	-	-	-	-	-
29	-	-	-	-	-	-	-	-	-	-	-	-
30	-	-	-	-	-	-	-	-	-	-	-	-
31	-	-	-	-	-	-	-	-	-	-	-	-
32	-	-	-	-	-	-	-	-	-	-	-	-
33	-	-	-	-	-	-	-	-	-	-	-	-
34	-	-	-	-	-	-	-	-	-	-	-	-
35	-	-	-	-	-	-	2	-	2	-	-	-
36	1	-	1	1	-	1	4	-	4	-	-	-
37	1	-	1	2	1	3	4	1	5	-	-	-
38	2	2	4	1	0	1	5	1	6	-	-	-
39	0	2	2	0	0	0	3	2	5	-	-	-
40	3	0	3	2	1	3	3	0	3	1	-	1
41	0	0	0	-	0	0	0	1	1	-	-	-
42	4	1	5	-	2	2	1	3	4	-	-	-
43	-	1	1	-	0	0	1	-	1	-	-	-
44	-	0	0	-	0	0	-	-	-	-	-	-
45	-	0	0	-	1	1	-	-	-	-	-	-
46	-	0	0	-	1	1	-	-	-	-	-	-
47	-	1	1	-	0	0	-	-	-	-	-	-
48	-	1	1	-	0	0	-	-	-	-	-	-
49	-	0	0	-	1	1	-	-	-	-	-	-
50	-	1	1	-	-	-	-	-	-	-	-	-

Appendix table 6 (cont'd)

Set no. Fork length (cm)	1			2			3			4		
	M	F	T	M	F	T	M	F	T	M	F	T
51	-	-	-	-	-	-	-	-	-	-	-	-
52	-	-	-	-	-	-	-	-	-	-	-	-
53	-	-	-	-	-	-	-	-	-	-	-	-
54	-	-	-	-	-	-	-	-	-	-	-	-
55	-	-	-	-	-	-	-	-	-	-	-	-
56	-	-	-	-	-	-	-	-	-	-	-	-
57	-	-	-	-	-	-	-	-	-	-	-	-
58	-	-	-	-	-	-	-	-	-	-	-	-
Total	11	9	20	6	7	13	23	8	31	1	0	1

Appendix table 6 (cont'd)

Set no. Fork length (cm)	5			6			7			8		
	M	F	T	M	F	T	M	F	T	M	F	T
8	-	-	-	-	-	-	-	-	-	-	-	-
9	-	-	-	-	-	-	-	-	-	-	-	-
10	-	1	1	-	-	-	1	-	1	-	-	-
11	-	0	0	-	-	-	0	1	1	-	-	-
12	-	0	0	-	-	-	0	0	0	-	-	-
13	-	0	0	-	1	1	1	1	2	-	-	-
14	-	0	0	1	0	1	0	0	0	-	-	-
15	-	0	0	0	0	0	0	0	0	-	-	-
16	-	0	0	0	0	0	0	0	0	-	-	-
17	-	0	0	0	0	0	0	0	0	-	-	-
18	-	0	0	0	0	0	0	0	0	-	-	-
19	-	0	0	0	0	0	0	0	0	-	-	-
20	-	0	0	0	0	0	0	0	0	-	-	-
21	-	0	0	0	0	0	0	0	0	-	-	-
22	-	0	0	0	0	0	0	0	0	-	-	-
23	-	0	0	0	0	0	0	0	0	-	-	-
24	-	0	0	0	0	0	0	0	0	-	-	-
25	-	0	0	0	0	0	0	0	0	-	1	1
26	-	0	0	0	0	0	1	1	2	1	0	1
27	-	0	0	0	0	0	2	0	2	0	0	0
28	-	0	0	0	0	0	7	0	7	2	0	2
29	-	0	0	3	0	3	6	0	6	3	1	4
30	-	0	0	1	0	1	12	1	13	3	0	3
31	-	0	0	0	0	0	8	6	14	3	1	4
32	-	0	0	0	0	0	4	1	5	4	1	5
33	-	0	0	0	0	0	4	3	7	2	0	2
34	-	0	0	0	0	0	3	0	3	1	1	2
35	-	0	0	0	0	0	0	0	0	3	0	3
36	-	0	0	2	0	2	4	0	4	1	0	1
37	-	0	0	3	0	3	8	0	8	7	0	7
38	-	0	0	3	2	5	10	1	11	6	1	7
39	-	0	0	2	1	3	8	3	11	6	0	6
40	-	1	1	2	1	3	7	2	9	7	1	8
41	-	-	-	1	0	1	5	10	15	7	3	10
42	-	-	-	2	2	4	10	2	12	8	3	11
43	-	-	-	1	3	4	5	3	8	10	1	11
44	-	-	-	1	0	1	3	6	9	5	1	6
45	-	-	-	0	1	1	3	4	7	5	4	9
46	-	-	-	0	3	3	4	5	9	2	1	3
47	-	-	-	0	1	1	5	5	10	2	1	3
48	-	-	-	2	0	2	5	5	10	3	1	4
49	-	-	-	-	0	0	2	1	3	3	0	3
50	-	-	-	-	0	0	3	4	7	0	5	5

Appendix table 6 (cont'd)

Set no. Fork length (cm)	5			6			7			8		
	M	F	T	M	F	T	M	F	T	M	F	T
51	-	-	-	-	0	0	-	3	3	0	2	2
52	-	-	-	-	3	3	-	4	4	1	1	2
53	-	-	-	-	-	-	-	3	3	-	0	0
54	-	-	-	-	-	-	-	2	2	-	0	0
55	-	-	-	-	-	-	-	-	-	-	0	0
56	-	-	-	-	-	-	-	-	-	-	2	2
57	-	-	-	-	-	-	-	-	-	-	-	-
58	-	-	-	-	-	-	-	-	-	-	-	-
Total	0	2	2	24	18	42	131	77	208	95	32	127

Appendix table 6 (cont'd)

Set no. Fork length (cm)	9			10			11			12		
	M	F	T	M	F	T	M	F	T	M	F	T
8	-	-	-	-	-	-	-	-	-	-	-	-
9	-	-	-	-	-	-	-	-	-	-	-	-
10	-	-	-	-	-	-	-	-	-	-	-	-
11	-	-	-	-	-	-	-	-	-	-	-	-
12	-	-	-	-	-	-	-	-	-	-	-	-
13	-	-	-	-	-	-	-	-	-	-	-	-
14	-	-	-	-	-	-	-	-	-	-	-	-
15	-	-	-	-	-	-	-	-	-	-	-	-
16	-	-	-	-	-	-	-	-	-	-	-	-
17	-	-	-	-	-	-	-	-	-	-	-	-
18	-	-	-	-	-	-	-	-	-	-	-	-
19	-	-	-	-	-	-	-	-	-	-	-	-
20	-	-	-	-	-	-	-	-	-	-	-	-
21	-	-	-	-	-	-	-	-	-	-	-	-
22	-	-	-	-	-	-	-	-	-	-	-	-
23	-	-	-	-	-	-	-	-	-	-	-	-
24	1	-	1	-	-	-	-	-	-	-	-	-
25	0	-	0	-	-	-	-	-	-	-	-	-
26	0	-	0	-	-	-	1	-	1	-	-	-
27	0	-	0	-	-	-	1	-	1	-	-	-
28	0	-	0	-	-	-	2	-	2	-	-	-
29	0	-	0	-	1	1	2	-	2	-	-	-
30	0	-	0	-	0	0	6	-	6	-	-	-
31	0	-	0	-	0	0	4	-	4	-	-	-
32	1	-	1	-	0	0	6	-	6	-	-	-
33	1	-	1	-	0	0	4	1	5	-	-	-
34	0	-	0	1	0	1	2	3	5	-	-	-
35	1	-	1	0	0	0	4	2	6	-	-	-
36	3	-	3	0	1	1	10	0	10	-	-	-
37	7	-	7	2	0	2	11	1	12	2	-	2
38	4	3	7	2	1	3	12	3	15	1	-	1
39	5	2	7	0	1	1	13	6	19	1	1	2
40	3	1	4	1	1	2	10	6	16	1	0	1
41	8	0	8	3	2	5	12	6	18	6	1	7
42	8	4	12	0	0	0	4	5	9	3	0	3
43	6	7	13	1	0	1	5	4	9	-	0	0
44	3	5	8	1	3	4	7	7	14	-	1	1
45	5	7	12	-	2	2	1	4	5	-	0	0
46	2	5	7	-	0	0	1	7	8	-	1	1
47	1	3	4	-	0	0	1	4	5	-	0	0
48	3	4	7	-	0	0	1	0	1	-	0	0
49	0	2	2	-	4	4	-	2	2	-	0	0
50	3	2	5	-	2	2	-	0	0	-	0	0

Appendix table 6 (cont'd)

Set no. Fork length (cm)	9			10			11			12		
	M	F	T	M	F	T	M	F	T	M	F	T
51	2	3	5	-	0	0	-	1	1	-	1	1
52	0	1	1	-	2	2	-	2	2	-	-	-
53	1	1	2	-	1	1	-	1	1	-	-	-
54	-	2	2	-	-	-	-	1	1	-	-	-
55	-	0	0	-	-	-	-	1	1	-	-	-
56	-	0	0	-	-	-	-	-	-	-	-	-
57	-	0	0	-	-	-	-	-	-	-	-	-
58	-	1	1	-	-	-	-	-	-	-	-	-
Total	68	53	121	11	21	32	120	67	187	14	5	19

Appendix table 6 (cont'd)

Set no. Fork length (cm)	13			14			15			16		
	M	F	T	M	F	T	M	F	T	M	F	T
8	-	-	-	-	-	-	-	-	-	-	-	-
9	-	-	-	-	-	-	-	-	-	-	-	-
10	-	-	-	-	-	-	-	-	-	-	-	-
11	-	-	-	-	-	-	-	-	-	-	-	-
12	-	-	-	-	-	-	-	-	-	-	-	-
13	-	-	-	-	-	-	-	-	-	-	-	-
14	-	-	-	-	-	-	-	-	-	-	-	-
15	-	-	-	-	-	-	-	-	-	-	-	-
16	-	-	-	-	-	-	-	-	-	-	-	-
17	-	-	-	-	-	-	-	-	-	-	-	-
18	-	-	-	-	-	-	-	-	-	-	-	-
19	-	-	-	-	-	-	-	-	-	-	-	-
20	-	-	-	-	-	-	-	-	-	-	-	-
21	-	-	-	-	-	-	-	-	-	-	-	-
22	-	-	-	-	-	-	-	-	-	-	-	-
23	-	-	-	-	-	-	-	-	-	-	-	-
24	-	-	-	-	-	-	-	-	-	-	-	-
25	-	-	-	-	-	-	-	-	-	-	-	-
26	-	-	-	-	-	-	-	-	-	-	-	-
27	-	-	-	-	-	-	-	-	-	-	-	-
28	-	-	-	-	-	-	-	-	-	-	-	-
29	-	-	-	-	-	-	-	-	-	1	-	1
30	2	1	3	-	-	-	-	-	-	0	-	0
31	1	3	4	-	-	-	-	-	-	0	-	0
32	3	1	4	-	-	-	-	-	-	0	-	0
33	2	0	2	1	-	1	-	-	-	0	-	0
34	1	0	1	0	-	0	-	-	-	0	-	0
35	1	1	2	0	-	0	-	-	-	1	-	1
36	3	2	5	1	-	1	-	-	-	1	-	1
37	3	1	4	1	-	1	1	-	1	0	-	0
38	3	1	4	2	-	2	1	-	1	2	-	2
39	5	2	7	1	1	2	2	-	2	0	1	1
40	4	1	5	1	1	2	1	-	1	1	1	2
41	1	1	2	0	0	0	0	-	0	2	0	2
42	2	2	4	1	1	2	1	-	1	1	0	1
43	3	1	4	-	3	3	0	1	1	0	1	1
44	0	5	5	-	1	1	0	-	0	0	-	0
45	0	6	6	-	0	0	1	-	1	1	-	1
46	1	0	1	-	0	0	-	-	-	-	-	-
47	1	3	4	-	0	0	-	-	-	-	-	-
48	-	1	1	-	1	1	-	-	-	-	-	-
49	-	1	1	-	-	-	-	-	-	-	-	-
50	-	0	0	-	-	-	-	-	-	-	-	-

Appendix table 6 (cont'd)

Set no. Fork length (cm)	13			14			15			16		
	M	F	T	M	F	T	M	F	T	M	F	T
51	-	2	2	-	-	-	-	-	-	-	-	-
52	-	0	0	-	-	-	-	-	-	-	-	-
53	-	0	0	-	-	-	-	-	-	-	-	-
54	-	0	0	-	-	-	-	-	-	-	-	-
55	-	1	1	-	-	-	-	-	-	-	-	-
56	-	-	-	-	-	-	-	-	-	-	-	-
57	-	-	-	-	-	-	-	-	-	-	-	-
58	-	-	-	-	-	-	-	-	-	-	-	-
Total	36	36	72	8	8	16	7	1	8	10	3	13

Appendix table 6 (cont'd)

Set no. Fork length (cm)	18			19			20			21		
	M	F	T	M	F	T	M	F	T	M	F	T
8	-	-	-	-	-	-	-	-	-	-	-	-
9	-	-	-	-	-	-	-	-	1	-	-	3
10	-	-	-	-	-	-	-	-	14	-	-	15
11	-	-	-	-	-	-	-	-	31	-	-	21
12	-	-	-	-	-	-	1	-	43	-	-	21
13	-	-	-	-	-	-	1	1	46	-	-	26
14	-	-	-	-	-	-	0	0	27	-	-	15
15	-	-	-	-	-	-	0	1	16	-	-	11
16	-	-	-	-	-	-	0	0	6	-	-	2
17	-	-	-	-	-	-	0	0	4	-	-	7
18	-	-	-	-	-	-	0	0	0	-	-	0
19	-	-	-	-	-	-	0	0	0	-	-	3
20	-	-	-	-	-	-	0	0	0	-	-	1
21	-	-	-	-	-	-	0	1	1	1	-	1
22	-	-	-	-	-	-	1	0	1	0	-	0
23	-	-	-	-	-	-	1	0	1	0	-	0
24	-	-	-	-	-	-	0	0	0	0	-	0
25	-	-	-	-	-	-	0	0	0	0	-	0
26	-	-	-	-	-	-	1	0	1	2	1	3
27	1	-	1	-	-	-	2	3	5	0	3	3
28	0	-	0	1	-	1	7	0	7	4	3	7
29	0	-	0	1	-	1	5	3	8	12	4	16
30	0	-	0	0	1	1	14	9	23	9	3	12
31	0	-	0	0	0	0	8	5	13	10	8	18
32	0	-	0	0	0	0	4	2	6	6	3	9
33	0	-	0	2	1	3	1	2	3	1	2	3
34	0	-	0	0	0	0	1	0	1	0	4	4
35	0	-	0	0	0	0	-	0	0	0	0	0
36	1	-	1	4	0	4	-	0	0	0	0	0
37	2	1	3	4	1	5	-	0	0	0	0	0
38	4	2	6	8	0	8	-	0	0	0	1	1
39	1	3	4	8	3	11	-	0	0	0	-	0
40	3	4	7	9	4	13	-	0	0	0	-	0
41	1	1	2	1	2	3	-	1	1	0	-	0
42	1	2	3	3	2	5	-	0	0	1	-	1
43	-	1	1	-	5	5	-	0	0	-	-	-
44	-	0	0	-	0	0	-	0	0	-	-	-
45	-	1	1	-	0	0	-	0	0	-	-	-
46	-	-	-	-	0	0	-	1	1	-	-	-
47	-	-	-	-	0	0	-	-	-	-	-	-
48	-	-	-	-	0	0	-	-	-	-	-	-
49	-	-	-	-	0	0	-	-	-	-	-	-
50	-	-	-	-	1	1	-	-	-	-	-	-

Appendix table 6 (cont'd)

Set no.	18			19			20			21		
Fork length (cm)	M	F	T	M	F	T	M	F	T	M	F	T
51	-	-	-	-	0	0	-	-	-	-	-	-
52	-	-	-	-	0	0	-	-	-	-	-	-
53	-	-	-	-	1	1	-	-	-	-	-	-
54	-	-	-	-	-	-	-	-	-	-	-	-
55	-	-	-	-	-	-	-	-	-	-	-	-
56	-	-	-	-	-	-	-	-	-	-	-	-
57	-	-	-	-	-	-	-	-	-	-	-	-
58	-	-	-	-	-	-	-	-	-	-	-	-
Total	14	15	29	41	21	62	47	29	260	46	32	203

Appendix table 6 (cont'd)

Set no. Fork length (cm)	22			23			25			26		
	M	F	T	M	F	T	M	F	T	M	F	T
8	-	-	-	-	-	-	-	-	-	-	-	-
9	-	-	-	-	-	-	-	-	-	-	-	-
10	-	-	1	-	-	11	-	-	-	-	-	-
11	-	-	8	-	-	18	-	-	-	-	-	-
12	-	-	6	-	-	28	-	-	1	-	-	3
13	-	-	14	-	-	49	-	-	3	-	-	2
14	-	-	9	-	-	54	-	-	2	-	-	0
15	-	-	9	-	-	33	-	-	3	-	-	6
16	-	-	4	-	-	12	-	-	0	-	-	1
17	-	-	2	-	-	3	-	-	0	-	-	0
18	-	-	3	-	-	3	-	-	0	-	-	0
19	-	-	3	1	1	2	-	-	0	-	-	0
20	1	-	2	0	2	2	-	-	0	-	-	0
21	1	-	1	0	0	0	-	-	0	-	-	0
22	0	-	0	0	0	0	-	-	0	-	-	0
23	0	-	0	0	0	0	-	-	0	-	-	0
24	0	-	0	0	1	1	-	-	0	-	-	0
25	0	1	1	1	0	1	-	-	0	-	-	0
26	0	0	0	2	0	2	-	-	0	-	-	0
27	1	0	1	4	1	5	-	-	0	-	-	0
28	4	2	6	11	4	15	-	-	0	-	-	0
29	5	3	8	10	8	18	-	-	0	-	-	0
30	4	2	6	16	9	25	1	-	1	-	-	0
31	4	7	11	21	19	40	1	1	2	-	-	0
32	4	3	7	17	9	26	0	1	1	-	-	0
33	0	2	2	6	7	13	0	1	1	-	-	0
34	1	1	2	2	4	6	0	0	0	-	-	0
35	0	0	0	1	2	3	0	0	0	-	-	0
36	0	1	1	1	0	1	0	1	1	-	-	0
37	0	1	1	0	0	0	1	0	1	-	-	0
38	0	0	0	0	0	0	-	0	0	-	-	0
39	0	0	0	0	0	0	-	0	0	-	-	0
40	1	1	2	1	0	1	-	1	1	-	-	0
41	-	2	2	-	0	0	-	-	-	-	-	0
42	-	0	0	-	1	1	-	-	-	-	-	0
43	-	0	0	-	1	1	-	-	-	-	-	0
44	-	0	0	-	-	-	-	-	-	-	-	0
45	-	0	0	-	-	-	-	-	-	-	-	0
46	-	0	0	-	-	-	-	-	-	-	-	0
47	-	0	0	-	-	-	-	-	-	-	-	0
48	-	0	0	-	-	-	-	-	-	-	-	0
49	-	0	0	-	-	-	-	-	-	-	-	0
50	-	0	0	-	-	-	-	-	-	-	-	0

Appendix table 6 (cont'd)

Set no. Fork length (cm)	22			23			25			26		
	M	F	T	M	F	T	M	F	T	M	F	T
51	-	0	0	-	-	-	-	-	-	-	-	0
52	-	0	0	-	-	-	-	-	-	-	-	1
53	-	1	1	-	-	-	-	-	-	-	-	-
54	-	-	-	-	-	-	-	-	-	-	-	-
55	-	-	-	-	-	-	-	-	-	-	-	-
56	-	-	-	-	-	-	-	-	-	-	-	-
57	-	-	-	-	-	-	-	-	-	-	-	-
58	-	-	-	-	-	-	-	-	-	-	-	-
Total	26	27	113	94	69	374	3	5	17	0	0	13

Appendix table 6 (cont'd)

Set no. Fork length (cm)	28			30			31			32		
	M	F	T	M	F	T	M	F	T	M	F	T
8	-	-	-	-	-	-	-	-	-	-	-	-
9	-	-	-	-	-	-	-	-	-	-	-	-
10	-	-	-	-	-	-	-	-	-	-	-	-
11	-	-	-	-	-	2	-	-	-	-	-	-
12	-	-	-	-	-	2	-	-	-	-	-	-
13	-	-	-	-	-	2	-	-	-	-	-	1
14	1	-	1	-	-	1	-	-	1	-	-	0
15	0	1	1	-	-	1	-	-	0	-	-	0
16	1	0	1	-	-	0	-	1	1	-	-	0
17	0	0	0	-	-	0	-	0	0	-	-	0
18	0	0	0	-	-	0	-	0	0	-	-	0
19	0	0	0	-	-	0	-	0	0	-	-	0
20	0	0	0	-	-	0	-	0	0	-	-	0
21	0	0	0	-	-	0	-	0	0	-	-	0
22	0	0	0	-	-	0	-	0	0	-	-	0
23	0	0	0	-	-	0	-	0	0	-	-	0
24	0	0	0	-	-	0	-	0	0	-	-	0
25	0	1	1	-	-	0	-	0	0	-	-	0
26	0	0	0	-	-	0	-	0	0	-	-	0
27	0	0	0	-	-	0	-	0	0	-	-	0
28	0	0	0	-	-	0	-	0	0	-	1	1
29	0	0	0	-	-	0	-	0	0	1	0	1
30	0	0	0	-	-	0	1	0	1	5	2	7
31	1	0	1	1	1	2	0	0	0	2	1	3
32	0	0	0	0	0	0	1	0	1	1	4	5
33	0	0	0	0	1	1	0	0	0	1	0	1
34	0	0	0	0	0	0	0	0	0	0	0	0
35	0	0	0	0	0	0	1	0	1	0	0	0
36	0	0	0	0	0	0	0	0	0	1	0	1
37	0	0	0	0	0	0	0	0	0	0	0	0
38	2	1	3	1	0	1	1	0	1	0	0	0
39	2	1	3	0	0	0	0	0	0	1	1	2
40	1	0	1	1	0	1	0	0	0	-	0	0
41	0	0	0	0	0	0	1	0	1	-	0	0
42	1	0	1	0	0	0	-	0	0	-	1	1
43	-	0	0	0	1	1	-	0	0	-	-	-
44	-	0	0	1	0	1	-	0	0	-	-	-
45	-	0	0	1	0	1	-	0	0	-	-	-
46	-	0	0	-	0	0	-	1	1	-	-	-
47	-	0	0	-	1	1	-	0	0	-	-	-
48	-	0	0	-	0	0	-	0	0	-	-	-
49	-	0	0	-	0	0	-	0	0	-	-	-
50	-	1	1	-	1	1	-	0	0	-	-	-

Appendix table 6 (cont'd)

Set no. Fork length (cm)	28			30			31			32		
	M	F	T	M	F	T	M	F	T	M	F	T
51	-	0	0	-	-	-	-	0	0	-	-	-
52	-	1	1	-	-	-	-	0	0	-	-	-
53	-	-	-	-	-	-	-	0	0	-	-	-
54	-	-	-	-	-	-	-	0	0	-	-	-
55	-	-	-	-	-	-	-	1	1	-	-	-
56	-	-	-	-	-	-	-	-	-	-	-	-
57	-	-	-	-	-	-	-	-	-	-	-	-
58	-	-	-	-	-	-	-	-	-	-	-	-
Total	9	6	15	5	5	18	5	3	9	12	10	23

Appendix table 6 (cont'd)

Set no. Fork length (cm)	33			34			35			36		
	M	F	T	M	F	T	M	F	T	M	F	T
8	-	-	1	-	-	-	-	-	-	-	-	-
9	-	-	8	-	-	3	-	-	28	-	-	-
10	-	-	20	-	-	7	-	-	84	-	-	-
11	-	-	36	-	-	22	-	-	24	-	-	-
12	-	-	26	-	-	58	-	-	13	-	-	-
13	-	-	15	-	-	106	-	-	5	1	-	1
14	-	-	10	-	-	103	-	-	3	0	-	0
15	-	-	2	-	-	58	-	-	1	0	-	0
16	-	-	-	-	-	14	-	-	1	0	-	0
17	-	-	-	-	-	5	-	-	-	0	-	0
18	-	-	-	-	-	0	-	-	-	0	-	0
19	-	-	-	-	-	0	-	-	-	0	-	0
20	-	-	-	-	-	0	-	-	-	0	-	0
21	-	-	-	-	-	0	-	-	-	0	-	0
22	-	-	-	-	-	0	-	-	-	0	-	0
23	-	-	-	-	-	0	-	-	-	0	-	0
24	-	-	-	-	-	1	-	-	-	0	-	0
25	-	-	-	-	-	-	-	-	-	0	-	0
26	-	-	-	-	-	-	-	-	-	0	-	0
27	-	-	-	-	-	-	-	-	-	0	-	0
28	-	-	-	-	-	-	-	-	-	2	-	2
29	-	-	-	-	-	-	-	-	-	2	-	2
30	-	-	-	-	-	-	-	-	-	0	-	0
31	-	-	-	-	-	-	-	-	-	0	-	0
32	-	-	-	-	-	-	-	-	-	0	-	0
33	-	-	-	-	-	-	-	-	-	0	-	0
34	-	-	-	-	-	-	-	-	-	1	-	1
35	-	-	-	-	-	-	-	-	-	0	-	0
36	-	-	-	-	-	-	-	-	-	0	-	0
37	-	-	-	-	-	-	-	-	-	0	-	0
38	-	-	-	-	-	-	-	-	-	0	-	0
39	-	-	-	-	-	-	-	-	-	2	-	2
40	-	-	-	-	-	-	-	-	-	0	-	0
41	-	-	-	-	-	-	-	-	-	0	-	0
42	-	-	-	-	-	-	-	-	-	0	-	0
43	-	-	-	-	-	-	-	-	-	1	2	3
44	-	-	-	-	-	-	-	-	-	0	0	0
45	-	-	-	-	-	-	-	-	-	2	0	2
46	-	-	-	-	-	-	-	-	-	-	1	1
47	-	-	-	-	-	-	-	-	-	-	1	1
48	-	-	-	-	-	-	-	-	-	-	-	-
49	-	-	-	-	-	-	-	-	-	-	-	-
50	-	-	-	-	-	-	-	-	-	-	-	-

Appendix table 6 (cont'd)

Set no. Fork length (cm)	33			34			35			36		
	M	F	T	M	F	T	M	F	T	M	F	T
51	-	-	-	-	-	-	-	-	-	-	-	-
52	-	-	-	-	-	-	-	-	-	-	-	-
53	-	-	-	-	-	-	-	-	-	-	-	-
54	-	-	-	-	-	-	-	-	-	-	-	-
55	-	-	-	-	-	-	-	-	-	-	-	-
56	-	-	-	-	-	-	-	-	-	-	-	-
57	-	-	-	-	-	-	-	-	-	-	-	-
58	-	-	-	-	-	-	-	-	-	-	-	-
Total	0	0	118	0	0	377	0	0	159	11	4	15

Appendix table 6 (cont'd)

Set no. Fork length (cm)	38			39			40			41		
	M	F	T	M	F	T	M	F	T	M	F	T
8	-	-	-	-	-	-	-	-	-	-	-	-
9	-	-	-	-	-	-	-	-	-	-	-	-
10	-	-	-	-	-	-	-	-	-	-	-	-
11	-	-	-	-	-	-	-	-	-	-	-	-
12	-	-	-	-	-	-	-	-	-	-	-	-
13	-	-	-	-	-	-	-	-	-	-	-	-
14	-	-	-	-	-	-	-	-	-	-	-	-
15	-	-	-	-	-	-	-	-	-	-	-	-
16	-	-	-	-	-	-	-	-	-	-	-	-
17	-	-	-	-	-	-	-	-	-	-	-	-
18	-	-	-	-	-	-	-	-	-	-	-	-
19	-	-	-	-	-	-	-	-	-	-	-	-
20	-	-	-	-	-	-	-	-	-	-	-	-
21	-	-	-	-	-	-	-	-	-	-	-	-
22	-	-	-	-	-	-	-	-	-	-	-	-
23	-	-	-	-	-	-	-	-	-	-	-	-
24	-	-	-	-	-	-	-	-	-	-	-	-
25	-	-	-	-	-	-	-	-	-	-	-	-
26	-	-	-	-	-	-	-	-	-	-	-	-
27	-	-	-	-	-	-	-	-	-	-	-	-
28	-	-	-	-	1	1	-	-	-	-	-	-
29	-	-	-	-	0	0	1	-	1	-	-	-
30	-	-	-	-	0	0	0	-	0	-	-	-
31	-	-	-	-	0	0	0	-	0	-	-	-
32	-	-	-	-	0	0	0	-	0	-	-	-
33	-	-	-	-	0	0	0	-	0	-	-	-
34	-	1	1	-	0	0	0	-	0	-	-	-
35	-	0	0	-	0	0	0	-	0	-	-	-
36	1	0	1	1	0	1	0	-	0	-	-	-
37	1	0	1	1	2	3	0	-	0	-	-	-
38	1	0	1	2	2	4	1	-	1	-	-	-
39	1	0	1	3	4	7	0	1	1	1	-	1
40	-	1	1	3	4	7	1	1	2	-	-	0
41	-	-	-	1	3	4	0	3	3	-	-	0
42	-	-	-	1	2	3	0	0	0	-	1	1
43	-	-	-	-	0	0	1	1	2	-	-	-
44	-	-	-	-	1	1	-	0	0	-	-	-
45	-	-	-	-	0	0	-	0	0	-	-	-
46	-	-	-	-	1	1	-	0	0	-	-	-
47	-	-	-	-	1	1	-	1	1	-	-	-
48	-	-	-	-	0	0	-	0	0	-	-	-
49	-	-	-	-	1	1	-	0	0	-	-	-
50	-	-	-	-	-	-	-	0	0	-	-	-

Appendix table 6 (cont'd)

Set no. Fork length (cm)	38			39			40			41		
	M	F	T	M	F	T	M	F	T	M	F	T
51	-	-	-	-	-	-	-	0	0	-	-	-
52	-	-	-	-	-	-	-	0	0	-	-	-
53	-	-	-	-	-	-	-	0	0	-	-	-
54	-	-	-	-	-	-	-	0	0	-	-	-
55	-	-	-	-	-	-	-	1	1	-	-	-
56	-	-	-	-	-	-	-	-	-	-	-	-
57	-	-	-	-	-	-	-	-	-	-	-	-
58	-	-	-	-	-	-	-	-	-	-	-	-
Total	4	2	6	12	22	34	4	8	12	1	1	2

Appendix table 6 (cont'd)

Set no. Fork length (cm)	42			43			44			45		
	M	F	T	M	F	T	M	F	T	M	F	T
8	-	-	-	-	-	-	-	-	-	-	-	-
9	-	-	-	-	-	-	-	-	-	-	-	-
10	-	-	-	-	-	-	-	-	-	-	-	-
11	-	-	-	-	-	-	-	-	-	-	-	-
12	-	-	-	-	-	-	-	-	-	-	-	-
13	-	-	-	-	-	-	-	-	-	-	-	-
14	-	-	-	-	-	-	-	-	-	-	-	-
15	-	-	-	-	-	-	-	-	-	-	-	-
16	-	-	-	-	-	-	-	-	-	-	-	-
17	-	-	-	-	-	-	-	-	-	-	-	-
18	-	-	-	-	-	-	-	-	-	-	-	-
19	-	-	-	-	-	-	-	-	-	-	-	-
20	-	-	-	-	-	-	-	-	-	-	-	-
21	-	-	-	-	-	-	-	-	-	-	-	-
22	-	-	-	-	-	-	-	-	-	-	-	-
23	-	-	-	-	-	-	-	-	-	-	-	-
24	-	-	-	-	-	-	-	-	-	-	-	-
25	-	-	-	-	-	-	-	-	-	-	-	-
26	-	-	-	-	-	-	-	-	-	-	-	-
27	-	-	-	-	-	-	-	-	-	-	-	-
28	-	-	-	-	-	-	-	-	-	-	-	-
29	-	-	-	-	-	-	-	-	-	-	-	-
30	-	-	-	-	-	-	-	-	-	-	-	-
31	-	-	-	-	-	-	-	-	-	-	-	-
32	-	-	-	-	-	-	-	-	-	-	-	-
33	-	-	-	-	-	-	-	-	-	-	-	-
34	-	-	-	-	-	-	-	-	-	-	-	-
35	1	-	1	-	-	-	-	-	-	-	-	-
36	0	-	0	-	-	-	-	1	1	-	-	-
37	1	-	1	-	-	-	1	0	1	-	-	-
38	1	-	1	-	-	-	0	4	4	-	-	-
39	-	-	0	-	-	-	1	0	1	-	1	1
40	-	1	1	-	-	-	2	2	4	-	2	2
41	-	-	-	1	1	2	3	1	4	-	0	0
42	-	-	-	-	-	-	2	1	3	1	2	3
43	-	-	-	-	-	-	-	1	1	2	1	3
44	-	-	-	-	-	-	-	0	0	0	0	0
45	-	-	-	-	-	-	-	1	1	0	0	0
46	-	-	-	-	-	-	-	1	1	1	0	1
47	-	-	-	-	-	-	-	1	1	-	1	1
48	-	-	-	-	-	-	-	-	-	-	-	-
49	-	-	-	-	-	-	-	-	-	-	-	-
50	-	-	-	-	-	-	-	-	-	-	-	-

Appendix table 6 (cont'd)

Set no. Fork length (cm)	42			43			44			45		
	M	F	T	M	F	T	M	F	T	M	F	T
51	-	-	-	-	-	-	-	-	-	-	-	-
52	-	-	-	-	-	-	-	-	-	-	-	-
53	-	-	-	-	-	-	-	-	-	-	-	-
54	-	-	-	-	-	-	-	-	-	-	-	-
55	-	-	-	-	-	-	-	-	-	-	-	-
56	-	-	-	-	-	-	-	-	-	-	-	-
57	-	-	-	-	-	-	-	-	-	-	-	-
58	-	-	-	-	-	-	-	-	-	-	-	-
Total	3	1	4	1	1	2	9	13	22	4	7	11

Appendix table 6 (cont'd)

Set no. Fork length (cm)	46			47			48			49		
	M	F	T	M	F	T	M	F	T	M	F	T
8	-	-	-	-	-	-	-	-	-	-	-	-
9	-	-	-	-	-	-	-	-	-	-	-	-
10	-	-	-	-	-	-	-	-	-	-	-	-
11	-	-	-	-	-	-	-	-	-	-	-	-
12	-	-	-	-	-	-	-	-	-	-	-	-
13	-	-	-	-	-	-	-	-	-	-	-	-
14	-	-	-	-	-	-	-	-	-	-	-	-
15	-	-	-	-	-	-	-	-	-	-	-	-
16	-	-	-	-	-	-	-	-	-	-	-	-
17	-	-	-	-	-	-	-	-	-	-	-	-
18	-	-	-	-	-	-	-	-	-	-	-	-
19	-	-	-	-	-	-	-	-	-	-	-	-
20	-	-	-	-	-	-	-	-	-	-	-	-
21	-	-	-	-	-	-	-	-	-	-	-	-
22	-	-	-	-	-	-	-	-	-	-	-	-
23	-	-	-	-	-	-	-	-	-	-	-	-
24	-	-	-	-	-	-	-	-	-	-	-	-
25	-	-	-	-	-	-	-	-	-	-	-	-
26	-	-	-	-	-	-	-	-	-	-	-	-
27	-	-	-	-	-	-	-	-	-	-	-	-
28	-	-	-	-	-	-	-	-	-	-	-	-
29	-	-	-	-	-	-	-	-	-	-	-	-
30	-	-	-	-	-	-	-	-	-	-	-	-
31	-	-	-	-	-	-	-	-	-	-	-	-
32	-	-	-	-	-	-	1	-	1	-	-	-
33	-	-	-	-	-	-	0	-	0	-	-	-
34	-	-	-	-	-	-	0	-	0	1	-	1
35	-	-	-	-	-	-	0	-	0	0	-	0
36	-	-	-	-	-	-	1	-	1	0	-	0
37	-	-	-	4	-	4	1	-	1	1	1	2
38	-	-	-	1	-	1	2	-	2	-	0	0
39	-	-	-	4	-	4	0	1	1	-	0	0
40	-	-	-	2	1	3	0	0	0	-	1	1
41	-	-	-	1	0	1	2	0	2	-	-	-
42	-	-	-	2	2	4	0	0	0	-	-	-
43	-	1	1	2	0	2	1	0	1	-	-	-
44	-	-	0	-	1	1	0	1	1	-	-	-
45	2	-	2	-	1	1	0	1	1	-	-	-
46	-	-	-	-	-	-	1	-	1	-	-	-
47	-	-	-	-	-	-	-	-	-	-	-	-
48	-	-	-	-	-	-	-	-	-	-	-	-
49	-	-	-	-	-	-	-	-	-	-	-	-
50	-	-	-	-	-	-	-	-	-	-	-	-

Appendix table 6 (cont'd)

Set no. Fork length (cm)	46			47			48			49		
	M	F	T	M	F	T	M	F	T	M	F	T
51	-	-	-	-	-	-	-	-	-	-	-	-
52	-	-	-	-	-	-	-	-	-	-	-	-
53	-	-	-	-	-	-	-	-	-	-	-	-
54	-	-	-	-	-	-	-	-	-	-	-	-
55	-	-	-	-	-	-	-	-	-	-	-	-
56	-	-	-	-	-	-	-	-	-	-	-	-
57	-	-	-	-	-	-	-	-	-	-	-	-
58	-	-	-	-	-	-	-	-	-	-	-	-
Total	2	1	3	16	5	21	9	3	12	2	2	4

Appendix table 6 (cont'd)

Set no. Fork length (cm)	51			52			53			54		
	M	F	T	M	F	T	M	F	T	M	F	T
8	-	-	-	-	-	-	-	-	-	-	-	-
9	-	-	-	-	-	-	-	-	-	-	-	-
10	-	-	-	-	-	-	-	-	-	-	-	-
11	-	-	-	-	-	-	-	-	-	-	-	-
12	-	-	-	-	-	-	-	-	-	-	-	-
13	-	-	-	-	-	-	-	-	-	-	-	-
14	-	-	-	-	-	-	-	-	-	-	-	-
15	-	-	-	-	-	-	-	-	-	-	-	-
16	-	-	-	-	-	-	-	-	-	-	-	-
17	-	-	-	-	-	-	-	-	-	-	-	-
18	-	-	-	-	-	-	-	-	-	-	-	-
19	-	-	-	-	-	-	-	-	-	-	-	-
20	-	-	-	-	-	-	-	-	-	-	-	-
21	-	-	-	-	-	-	-	-	-	-	-	-
22	-	-	-	-	-	-	-	-	-	-	-	-
23	-	-	-	-	-	-	-	-	-	-	-	-
24	-	-	-	-	-	-	-	-	-	-	-	-
25	-	-	-	-	-	-	-	-	-	-	-	-
26	-	-	-	-	-	-	-	-	-	1	-	1
27	-	-	-	-	-	-	-	-	-	0	-	0
28	-	-	-	-	-	-	1	-	1	0	-	0
29	-	-	-	-	-	-	1	-	1	2	-	2
30	-	-	-	-	-	-	3	-	3	0	-	0
31	-	-	-	-	-	-	1	1	2	0	-	0
32	-	-	-	-	-	-	0	0	0	0	-	0
33	-	-	-	-	-	-	2	1	3	1	-	1
34	-	-	-	-	-	-	2	0	2	1	-	1
35	-	-	-	-	-	-	6	1	7	1	1	2
36	-	1	1	1	-	1	6	1	7	1	0	1
37	1	0	1	2	1	3	13	3	16	3	1	4
38	-	1	1	1	0	1	23	4	27	4	2	6
39	-	1	1	0	0	0	15	5	20	2	5	7
40	-	0	0	3	2	5	6	8	14	2	2	4
41	-	0	0	1	2	3	8	4	12	3	5	8
42	-	0	0	2	1	3	3	4	7	2	5	7
43	-	2	2	-	1	1	2	5	7	0	0	0
44	-	-	-	-	1	1	1	6	7	0	0	0
45	-	-	-	-	0	0	0	1	1	0	3	3
46	-	-	-	-	0	0	1	1	2	1	0	1
47	-	-	-	-	0	0	-	1	1	-	1	1
48	-	-	-	-	1	1	-	1	1	-	0	0
49	-	-	-	-	-	-	-	0	0	-	0	0
50	-	-	-	-	-	-	-	1	1	-	1	1

Appendix table 6 (cont'd)

Set no. Fork length (cm)	51			52			53			54		
	M	F	T	M	F	T	M	F	T	M	F	T
51	-	-	-	-	-	-	-	0	0	-	-	-
52	-	-	-	-	-	-	-	0	0	-	-	-
53	-	-	-	-	-	-	-	0	0	-	-	-
54	-	-	-	-	-	-	-	0	0	-	-	-
55	-	-	-	-	-	-	-	0	0	-	-	-
56	-	-	-	-	-	-	-	0	0	-	-	-
57	-	-	-	-	-	-	-	0	0	-	-	-
58	-	-	-	-	-	-	-	1	1	-	-	-
Total	1	5	6	10	9	19	94	49	143	24	26	50

Appendix table 6 (cont'd)

Set no. Fork length (cm)	55			Total		
	M	F	T	M	F	T
8	-	-	-	-	-	1
9	-	-	-	-	-	43
10	-	-	-	1	1	154
11	-	-	-	0	1	163
12	-	-	-	1	0	201
13	-	-	-	3	3	273
14	-	-	-	2	0	227
15	-	-	-	0	2	141
16	-	-	-	1	1	42
17	-	-	-	0	0	21
18	-	-	-	0	0	6
19	-	-	-	1	1	8
20	-	-	-	1	2	5
21	-	-	-	2	1	3
22	-	-	-	1	0	1
23	-	-	-	1	0	1
24	-	-	-	1	1	3
25	-	-	-	1	3	4
26	-	-	-	9	2	11
27	1	-	1	12	7	19
28	0	-	0	41	11	52
29	0	-	0	55	20	75
30	2	-	2	79	28	107
31	2	-	2	67	53	120
32	1	-	1	53	25	78
33	4	-	4	32	21	53
34	4	-	4	21	14	35
35	12	1	13	34	8	42
36	18	1	19	67	9	76
37	37	2	39	125	17	142
38	53	5	58	161	37	198
39	89	2	91	174	50	224
40	32	7	39	114	59	173
41	15	4	19	83	53	136
42	16	7	23	80	56	136
43	6	1	7	47	48	95
44	5	3	8	27	42	69
45	2	4	6	23	41	64
46	2	2	4	16	31	47
47	-	2	2	10	28	38
48	-	0	0	14	15	29
49	-	0	0	5	12	17
50	-	2	2	6	21	27

Appendix table 6 (cont'd)

Set no. Fork length (cm)	55			Total		
	M	F	T	M	F	T
51	-	0	0	2	12	14
52	-	0	0	1	14	16
53	-	1	1	1	9	10
54	-	-	-	-	5	5
55	-	-	-	-	4	4
56	-	-	-	-	2	2
57	-	-	-	-	0	0
58	-	-	-	-	2	2
Total	301	44	345	1375	772	3413

Appendix table 7. Walleye pollock length frequency. G.B. REED, April 18-24, 1983.

Set no.	1			2			3			4		
Fork length (cm)	M	F	T	M	F	T	M	F	T	M	F	T
27	-	-	-	-	-	-	-	-	-	1	-	1
28	1	-	1	-	-	-	-	-	-	1	-	1
29	0	-	0	-	-	-	-	-	-	1	-	1
30	0	-	0	1	-	1	-	-	-	3	-	3
31	0	1	1	0	-	0	-	1	1	0	1	1
32	0	0	0	1	-	1	-	1	1	1	3	4
33	1	0	1	1	-	1	-	0	0	2	0	2
34	0	0	0	0	-	0	-	0	0	3	1	4
35	0	0	0	1	-	1	-	0	0	0	0	0
36	1	0	1	0	-	0	-	0	0	3	0	3
37	0	0	0	0	-	0	2	0	2	9	1	10
38	0	0	0	0	-	0	0	0	0	2	1	3
39	2	0	2	0	-	0	0	0	0	8	0	8
40	0	0	0	0	1	1	1	0	1	8	0	8
41	1	0	1	3	0	3	-	0	0	5	0	5
42	-	0	0	-	1	1	-	0	0	5	0	5
43	-	0	0	-	0	0	-	0	0	2	2	4
44	-	0	0	-	1	1	-	1	1	0	0	0
45	-	1	1	-	0	0	-	-	-	0	0	0
46	-	-	-	-	0	0	-	-	-	1	0	1
47	-	-	-	-	0	0	-	-	-	0	0	0
48	-	-	-	-	0	0	-	-	-	1	1	2
49	-	-	-	-	0	0	-	-	-	1	0	1
50	-	-	-	-	0	0	-	-	-	-	0	0
51	-	-	-	-	0	0	-	-	-	-	1	1
52	-	-	-	-	0	0	-	-	-	-	0	0
53	-	-	-	-	0	0	-	-	-	-	0	0
54	-	-	-	-	1	1	-	-	-	-	1	1
55	-	-	-	-	-	-	-	-	-	-	-	-
Total	6	2	8	7	4	11	3	3	6	57	12	69

Appendix table 7 (cont'd)

Set no. Fork length (cm)	5			6			7			8		
	M	F	T	M	F	T	M	F	T	M	F	T
27	-	-	-	-	-	-	-	-	-	-	-	-
28	-	-	-	-	-	-	-	-	-	-	-	-
29	-	-	-	-	-	-	-	-	-	-	-	-
30	1	-	1	-	-	-	-	-	-	-	-	-
31	1	-	1	-	-	-	-	-	-	-	-	-
32	2	-	2	-	-	-	-	-	-	-	-	-
33	1	1	2	-	-	-	-	-	-	-	1	1
34	5	1	6	-	-	-	-	-	-	-	1	1
35	4	1	5	-	-	-	-	-	-	-	0	0
36	28	6	34	-	-	-	-	-	-	-	0	0
37	46	6	52	1	-	1	-	-	-	2	0	2
38	56	12	68	0	-	0	-	-	-	0	1	1
39	63	18	81	0	1	1	-	-	-	5	3	8
40	33	32	65	3	-	3	-	-	-	1	1	2
41	14	19	33	0	-	0	1	-	1	1	1	2
42	8	18	26	0	-	0	-	-	0	-	1	1
43	2	14	16	0	-	0	-	1	1	-	0	0
44	1	4	5	1	-	1	-	-	-	-	1	1
45	0	4	4	-	-	-	-	-	-	-	1	1
46	1	0	1	-	-	-	-	-	-	-	0	0
47	-	2	2	-	-	-	-	-	-	-	1	1
48	-	0	0	-	-	-	-	-	-	-	-	-
49	-	0	0	-	-	-	-	-	-	-	-	-
50	-	0	0	-	-	-	-	-	-	-	-	-
51	-	0	0	-	-	-	-	-	-	-	-	-
52	-	1	1	-	-	-	-	-	-	-	-	-
53	-	0	0	-	-	-	-	-	-	-	-	-
54	-	0	0	-	-	-	-	-	-	-	-	-
55	-	1	1	-	-	-	-	-	-	-	-	-
Total	266	140	406	5	1	6	1	1	2	9	12	21

Appendix table 7 (cont'd)

Set no. Fork length (cm)	9			10			11			12		
	M	F	T	M	F	T	M	F	T	M	F	T
27	-	-	-	-	-	-	-	-	-	-	-	-
28	-	-	-	-	-	-	-	-	-	-	-	-
29	-	-	-	-	-	-	-	-	-	-	-	-
30	-	-	-	-	-	-	-	-	-	-	-	-
31	-	-	-	-	-	-	-	-	-	-	-	-
32	-	-	-	-	-	-	-	-	-	1	-	1
33	-	-	-	-	-	-	-	-	-	0	-	0
34	-	-	-	-	-	-	1	-	1	0	-	0
35	-	-	-	-	-	-	2	-	2	14	-	14
36	2	-	2	-	-	-	6	1	7	9	2	11
37	0	-	0	2	1	3	16	5	21	26	5	31
38	0	-	0	1	1	2	21	5	26	39	9	48
39	0	-	0	0	0	0	17	11	28	28	19	47
40	0	1	1	1	0	1	11	12	23	35	21	56
41	0	2	2	1	0	1	6	22	28	28	28	56
42	1	0	1	2	0	2	4	10	14	13	18	31
43	0	0	0	-	0	0	1	7	8	3	9	12
44	0	1	1	-	0	0	0	4	4	0	8	8
45	0	-	0	-	1	1	0	1	1	1	2	3
46	0	-	0	-	1	1	2	0	2	1	1	2
47	1	-	1	-	-	-	0	3	3	0	1	1
48	-	-	-	-	-	-	2	1	3	1	0	1
49	-	-	-	-	-	-	-	2	2	-	0	0
50	-	-	-	-	-	-	-	0	0	-	1	1
51	-	-	-	-	-	-	-	0	0	-	1	1
52	-	-	-	-	-	-	-	1	1	-	-	-
53	-	-	-	-	-	-	-	-	-	-	-	-
54	-	-	-	-	-	-	-	-	-	-	-	-
55	-	-	-	-	-	-	-	-	-	-	-	-
Total	4	4	8	7	4	11	89	85	174	199	125	324

Appendix table 7 (cont'd)

Set no. Fork length (cm)	13			14			15			16		
	M	F	T	M	F	T	M	F	T	M	F	T
27	-	-	-	-	-	-	-	-	-	-	-	-
28	-	-	-	-	-	-	-	-	-	-	-	-
29	-	-	-	-	-	-	-	-	-	-	-	-
30	-	-	-	-	-	-	-	-	-	-	-	-
31	-	-	-	1	-	1	-	-	-	-	-	-
32	-	-	-	1	-	1	-	-	-	-	-	-
33	-	-	-	1	-	1	-	-	-	-	1	1
34	1	-	1	0	-	0	-	-	-	-	0	0
35	1	-	1	0	-	0	-	-	-	1	0	1
36	5	1	6	0	-	0	-	-	-	1	0	1
37	8	0	8	1	-	1	-	-	-	0	0	0
38	4	0	4	-	-	0	2	-	2	1	0	1
39	3	2	5	-	1	1	0	-	0	0	0	0
40	5	3	8	-	0	0	2	-	2	1	0	1
41	2	2	4	-	1	1	0	-	0	-	1	1
42	3	4	7	-	0	0	1	-	1	-	1	1
43	1	0	1	-	0	0	1	-	1	-	-	-
44	-	0	0	-	0	0	-	-	-	-	-	-
45	-	0	0	-	0	0	-	-	-	-	-	-
46	-	0	0	-	1	1	-	-	-	-	-	-
47	-	1	1	-	-	-	-	-	-	-	-	-
48	-	-	-	-	-	-	-	-	-	-	-	-
49	-	-	-	-	-	-	-	-	-	-	-	-
50	-	-	-	-	-	-	-	-	-	-	-	-
51	-	-	-	-	-	-	-	-	-	-	-	-
52	-	-	-	-	-	-	-	-	-	-	-	-
53	-	-	-	-	-	-	-	-	-	-	-	-
54	-	-	-	-	-	-	-	-	-	-	-	-
55	-	-	-	-	-	-	-	-	-	-	-	-
Total	33	13	46	4	3	7	6	0	6	4	3	7

Appendix table 7 (cont'd)

Set no. Fork length (cm)	17			18			19			20		
	M	F	T	M	F	T	M	F	T	M	F	T
27	-	-	-	-	-	-	-	-	-	-	-	-
28	-	-	-	-	-	-	-	-	-	-	-	-
29	-	-	-	-	-	-	-	-	-	-	-	-
30	-	-	-	-	-	-	-	-	-	-	-	-
31	-	-	-	1	-	1	-	-	-	-	-	-
32	-	1	1	0	-	0	-	-	-	-	-	-
33	-	0	0	0	-	0	-	-	-	-	-	-
34	1	0	1	0	-	0	-	-	-	-	1	1
35	0	0	0	1	-	1	-	-	-	2	0	2
36	0	0	0	0	-	0	1	-	1	1	0	1
37	2	1	3	0	1	1	0	-	0	2	1	3
38	0	-	0	0	-	0	1	-	1	4	0	4
39	1	-	1	2	-	2	1	-	1	2	0	2
40	1	-	1	1	-	1	-	-	-	2	3	5
41	2	-	2	0	-	0	-	-	-	1	1	2
42	-	-	-	1	-	1	-	-	-	-	1	1
43	-	-	-	1	-	1	-	-	-	-	0	0
44	-	-	-	-	-	-	-	-	-	-	2	2
45	-	-	-	-	-	-	-	-	-	-	-	-
46	-	-	-	-	-	-	-	-	-	-	-	-
47	-	-	-	-	-	-	-	-	-	-	-	-
48	-	-	-	-	-	-	-	-	-	-	-	-
49	-	-	-	-	-	-	-	-	-	-	-	-
50	-	-	-	-	-	-	-	-	-	-	-	-
51	-	-	-	-	-	-	-	-	-	-	-	-
52	-	-	-	-	-	-	-	-	-	-	-	-
53	-	-	-	-	-	-	-	-	-	-	-	-
54	-	-	-	-	-	-	-	-	-	-	-	-
55	-	-	-	-	-	-	-	-	-	-	-	-
Total	7	2	9	7	1	8	3	0	3	14	9	23

Appendix table 7 (cont'd)

Set no. Fork length (cm)	Total		
	M	F	T
27	1	-	1
28	2	-	2
29	1	-	1
30	5	-	5
31	3	3	6
32	6	5	11
33	6	4	10
34	11	3	14
35	26	1	27
36	57	10	67
37	117	21	138
38	131	29	160
39	132	55	187
40	105	74	179
41	65	77	142
42	38	54	92
43	11	33	44
44	2	22	24
45	1	10	11
46	5	3	8
47	1	8	9
48	4	2	6
49	1	2	3
50	-	1	1
51	-	2	2
52	-	2	2
53	-	0	0
54	-	2	2
55	-	1	1
Total	731	424	1155

Appendix table 8. Spiny dogfish length frequency. G.B. REED, February 7-28, 1983.

Set no.	1			2			3			4		
Total length (cm)	M	F	T	M	F	T	M	F	T	M	F	T
25	-	-	-	-	-	-	-	-	-	-	-	-
26	-	-	-	-	-	-	-	-	-	-	-	-
27	-	-	-	-	-	-	-	2	2	-	-	-
28	-	-	-	-	-	-	1	1	2	1	-	1
29	-	-	-	-	-	-	9	12	21	0	-	0
30	2	-	2	-	-	-	13	8	21	0	-	0
31	0	-	0	-	-	-	25	16	41	0	-	0
32	1	-	1	-	-	-	16	12	28	0	-	0
33	0	-	0	-	-	-	16	16	32	0	-	0
34	0	-	0	-	1	1	17	11	28	0	-	0
35	0	-	0	-	0	0	11	7	18	1	1	2
36	0	1	1	-	0	0	4	1	5	0	1	1
37	0	-	0	-	0	0	1	5	6	0	0	0
38	0	-	0	-	0	0	2	4	6	0	0	0
39	0	-	0	-	0	0	-	-	-	0	0	0
40	0	-	0	-	0	0	-	-	-	0	0	0
41	0	-	0	-	0	0	-	-	-	0	0	0
42	0	-	0	-	0	0	-	-	-	0	0	0
43	0	-	0	-	0	0	-	-	-	0	0	0
44	0	-	0	-	0	0	-	-	-	0	1	1
45	0	-	0	-	0	0	-	-	-	1	0	1
46	0	-	0	-	0	0	-	-	-	0	0	0
47	0	-	0	-	0	0	-	-	-	0	0	0
48	0	-	0	-	0	0	-	-	-	0	0	0
49	0	-	0	-	0	0	-	-	-	0	0	0
50	1	-	1	-	0	0	-	-	-	0	1	1
51	0	-	0	-	0	0	-	-	-	0	-	0
52	0	-	0	-	0	0	-	-	-	0	-	0
53	0	-	0	-	0	0	-	-	-	1	-	1
54	0	-	0	-	0	0	-	-	-	0	-	0
55	0	-	0	-	0	0	-	-	-	0	-	0
56	0	-	0	-	0	0	-	-	-	0	-	0
57	0	-	0	-	0	0	-	-	-	0	-	0
58	0	-	0	-	0	0	-	-	-	0	-	0
59	0	-	0	-	0	0	-	-	-	0	-	0
60	0	-	0	-	0	0	-	-	-	1	-	1
61	0	-	0	-	0	0	-	-	-	1	-	1
62	0	-	0	-	0	0	-	-	-	1	-	1
63	0	-	0	-	0	0	-	-	-	1	-	1
64	0	-	0	-	0	0	-	-	-	-	-	-
65	0	-	0	-	0	0	-	-	-	-	-	-
66	0	-	0	-	0	0	-	-	-	-	-	-
67	0	-	0	-	0	0	-	-	-	-	-	-

Appendix table 8 (cont'd)

Set no. Total length (cm)	1			2			3			4		
	M	F	T	M	F	T	M	F	T	M	F	T
68	0	-	0	-	0	0	-	-	-	-	-	-
69	0	-	0	-	0	0	-	-	-	-	-	-
70	0	-	0	-	0	0	-	-	-	-	-	-
71	0	-	0	-	0	0	-	-	-	-	-	-
72	0	-	0	-	0	0	-	-	-	-	-	-
73	0	-	0	-	0	0	-	-	-	-	-	-
74	0	-	0	1	0	1	-	-	-	-	-	-
75	0	-	0	-	0	0	-	-	-	-	-	-
76	0	-	0	-	0	0	-	-	-	-	-	-
77	0	-	0	-	0	0	-	-	-	-	-	-
78	0	-	0	-	0	0	-	-	-	-	-	-
79	0	-	0	-	0	0	-	-	-	-	-	-
80	0	-	0	-	0	0	-	-	-	-	-	-
81	0	-	0	-	0	0	-	-	-	-	-	-
82	0	-	0	-	0	0	-	-	-	-	-	-
83	0	-	0	-	0	0	-	-	-	-	-	-
84	1	-	1	-	0	0	-	-	-	-	-	-
85	-	-	-	-	0	0	-	-	-	-	-	-
86	-	-	-	-	0	0	-	-	-	-	-	-
87	-	-	-	-	0	0	-	-	-	-	-	-
88	-	-	-	-	0	0	-	-	-	-	-	-
89	-	-	-	-	0	0	-	-	-	-	-	-
90	-	-	-	-	0	0	-	-	-	-	-	-
91	-	-	-	-	0	0	-	-	-	-	-	-
92	-	-	-	-	0	0	-	-	-	-	-	-
93	-	-	-	-	0	0	-	-	-	-	-	-
94	-	-	-	-	0	0	-	-	-	-	-	-
95	-	-	-	-	0	0	-	-	-	-	-	-
96	-	-	-	-	0	0	-	-	-	-	-	-
97	-	-	-	-	0	0	-	-	-	-	-	-
98	-	-	-	-	0	0	-	-	-	-	-	-
99	-	-	-	-	0	0	-	-	-	-	-	-
100	-	-	-	-	0	0	-	-	-	-	-	-
101	-	-	-	-	0	0	-	-	-	-	-	-
102	-	-	-	-	0	0	-	-	-	-	-	-
103	-	-	-	-	0	0	-	-	-	-	-	-
104	-	-	-	-	0	0	-	-	-	-	-	-
105	-	-	-	-	0	0	-	-	-	-	-	-
106	-	-	-	-	0	0	-	-	-	-	-	-
107	-	-	-	-	0	0	-	-	-	-	-	-
108	-	-	-	-	1	1	-	-	-	-	-	-
109	-	-	-	-	-	-	-	-	-	-	-	-
110	-	-	-	-	-	-	-	-	-	-	-	-

Appendix table 8 (cont'd)

Set no. Total length (cm)	1			2			3			4		
	M	F	T	M	F	T	M	F	T	M	F	T
111	-	-	-	-	-	-	-	-	-	-	-	-
112	-	-	-	-	-	-	-	-	-	-	-	-
113	-	-	-	-	-	-	-	-	-	-	-	-
114	-	-	-	-	-	-	-	-	-	-	-	-
115	-	-	-	-	-	-	-	-	-	-	-	-
116	-	-	-	-	-	-	-	-	-	-	-	-
117	-	-	-	-	-	-	-	-	-	-	-	-
118	-	-	-	-	-	-	-	-	-	-	-	-
Total	5	1	6	1	2	3	115	95	210	8	4	12

Appendix table 8 (cont'd)

Set no.	5			6			7			9		
Total length (cm)	M	F	T	M	F	T	M	F	T	M	F	T
25	-	-	-	-	-	-	1	1	2	-	-	-
26	-	-	-	-	-	-	1	1	2	-	-	-
27	-	-	-	1	1	2	5	8	13	-	-	-
28	-	-	-	1	0	1	7	5	12	-	-	-
29	-	-	-	2	0	2	4	3	7	-	-	-
30	-	-	-	2	2	4	0	0	0	-	1	1
31	-	-	-	0	2	2	0	0	0	-	0	0
32	-	-	-	5	1	6	0	0	0	-	0	0
33	-	-	-	4	5	9	0	0	0	-	0	0
34	-	-	-	1	4	5	0	0	0	-	0	0
35	-	-	-	2	4	6	0	0	0	-	0	0
36	-	-	-	3	1	4	0	0	0	-	0	0
37	-	-	-	2	0	2	0	0	0	-	0	0
38	1	-	1	0	3	3	0	0	0	-	0	0
39	0	-	0	0	0	0	0	0	0	-	0	0
40	1	-	1	0	1	1	0	0	0	-	0	0
41	0	-	0	1	0	1	0	0	0	-	0	0
42	0	-	0	0	0	0	0	0	0	-	0	0
43	1	-	1	0	0	0	0	0	0	-	0	0
44	0	-	0	0	0	0	0	0	0	-	0	0
45	0	-	0	0	0	0	0	0	0	-	0	0
46	0	-	0	0	0	0	0	0	0	-	0	0
47	0	-	0	0	0	0	0	0	0	-	0	0
48	0	-	0	0	0	0	0	0	0	-	0	0
49	0	-	0	0	0	0	0	0	0	-	0	0
50	0	1	1	0	0	0	0	0	0	-	0	0
51	1	-	1	0	0	0	0	0	0	-	0	0
52	-	-	-	0	0	0	0	0	0	-	0	0
53	-	-	-	0	0	0	0	0	0	-	0	0
54	-	-	-	0	0	0	1	0	1	1	0	1
55	-	-	-	0	0	0	-	0	0	0	0	0
56	-	-	-	0	0	0	-	0	0	0	0	0
57	-	-	-	0	0	0	-	0	0	0	0	0
58	-	-	-	0	0	0	-	0	0	0	0	0
59	-	-	-	0	0	0	-	0	0	0	0	0
60	-	-	-	0	0	0	-	0	0	0	0	0
61	-	-	-	0	0	0	-	0	0	0	0	0
62	-	-	-	0	0	0	-	0	0	0	0	0
63	-	-	-	0	0	0	-	0	0	0	0	0
64	-	-	-	0	0	0	-	0	0	0	0	0
65	-	-	-	0	0	0	-	0	0	0	0	0
66	-	-	-	0	0	0	-	0	0	0	0	0
67	-	-	-	0	0	0	-	0	0	0	0	0

Appendix table 8 (cont'd)

Set no. Total length (cm)	5			6			7			9		
	M	F	T	M	F	T	M	F	T	M	F	T
68	-	-	-	0	0	0	-	0	0	0	0	0
69	-	-	-	0	1	1	-	0	0	0	0	0
70	-	-	-	0	0	0	-	0	0	0	0	0
71	-	-	-	0	0	0	-	0	0	0	0	0
72	-	-	-	1	0	1	-	0	0	0	0	0
73	-	-	-	0	0	0	-	0	0	0	0	0
74	-	-	-	1	0	1	-	0	0	0	1	1
75	-	-	-	0	1	1	-	0	0	0	0	0
76	-	-	-	0	-	0	-	0	0	0	1	1
77	-	-	-	0	-	0	-	0	0	0	0	0
78	-	-	-	0	-	0	-	0	0	0	0	0
79	-	-	-	1	-	1	-	0	0	2	0	2
80	-	-	-	0	-	0	-	0	0	1	0	1
81	-	-	-	1	-	1	-	0	0	-	0	0
82	-	-	-	0	-	0	-	0	0	-	0	0
83	-	-	-	0	-	0	-	0	0	-	0	0
84	-	-	-	1	-	1	-	0	0	-	0	0
85	-	-	-	1	-	1	-	1	1	-	0	0
86	-	-	-	1	-	1	-	0	0	-	0	0
87	-	-	-	-	-	-	-	0	0	-	0	0
88	-	-	-	-	-	-	-	0	0	-	0	0
89	-	-	-	-	-	-	-	0	0	-	0	0
90	-	-	-	-	-	-	-	1	1	-	0	0
91	-	-	-	-	-	-	-	0	0	-	0	0
92	-	-	-	-	-	-	-	0	0	-	0	0
93	-	-	-	-	-	-	-	0	0	-	0	0
94	-	-	-	-	-	-	-	0	0	-	1	1
95	-	-	-	-	-	-	-	0	0	-	0	0
96	-	-	-	-	-	-	-	0	0	-	0	0
97	-	-	-	-	-	-	-	0	0	-	0	0
98	-	-	-	-	-	-	-	0	0	-	0	0
99	-	-	-	-	-	-	-	0	0	-	1	1
100	-	-	-	-	-	-	-	0	0	-	-	-
101	-	-	-	-	-	-	-	0	0	-	-	-
102	-	-	-	-	-	-	-	0	0	-	-	-
103	-	-	-	-	-	-	-	0	0	-	-	-
104	-	-	-	-	-	-	-	0	0	-	-	-
105	-	-	-	-	-	-	-	0	0	-	-	-
106	-	-	-	-	-	-	-	0	0	-	-	-
107	-	-	-	-	-	-	-	0	0	-	-	-
108	-	-	-	-	-	-	-	1	1	-	-	-
109	-	-	-	-	-	-	-	-	-	-	-	-
110	-	-	-	-	-	-	-	-	-	-	-	-

Appendix table 8 (cont'd)

Set no. Total length (cm)	5			6			7			9		
	M	F	T	M	F	T	M	F	T	M	F	T
111	-	-	-	-	-	-	-	-	-	-	-	-
112	-	-	-	-	-	-	-	-	-	-	-	-
113	-	-	-	-	-	-	-	-	-	-	-	-
114	-	-	-	-	-	-	-	-	-	-	-	-
115	-	-	-	-	-	-	-	-	-	-	-	-
116	-	-	-	-	-	-	-	-	-	-	-	-
117	-	-	-	-	-	-	-	-	-	-	-	-
118	-	-	-	-	-	-	-	-	-	-	-	-
Total	4	1	5	31	26	57	19	21	40	4	5	9

Appendix table 8 (cont'd)

Set no. Total length (cm)	10			11			12			13		
	M	F	T	M	F	T	M	F	T	M	F	T
25	-	-	-	-	-	-	-	-	-	-	-	-
26	-	-	-	-	-	-	-	-	-	-	-	-
27	-	-	-	-	-	-	-	-	-	-	-	-
28	-	-	-	-	-	-	-	-	-	-	-	-
29	-	-	-	-	-	-	-	-	-	-	-	-
30	-	-	-	-	-	-	-	-	-	-	1	1
31	-	-	-	-	-	-	-	-	-	-	0	0
32	-	-	-	-	-	-	-	-	-	2	0	2
33	-	-	-	-	-	-	-	-	-	3	1	4
34	-	-	-	-	-	-	-	-	-	2	5	7
35	-	-	-	1	-	1	-	-	-	3	8	11
36	-	-	-	0	-	0	-	-	-	10	10	20
37	-	-	-	0	-	0	-	-	-	12	2	14
38	-	-	-	0	-	0	-	-	-	6	9	15
39	-	-	-	0	-	0	-	-	-	10	7	17
40	-	-	-	1	-	1	-	-	-	13	2	15
41	-	-	-	0	-	0	-	-	-	2	4	6
42	-	-	-	0	-	0	-	-	-	5	1	6
43	-	-	-	0	-	0	-	-	-	0	1	1
44	-	-	-	0	-	0	-	-	-	4	0	4
45	1	-	1	0	-	0	-	-	-	2	1	3
46	0	-	0	0	-	0	-	-	-	0	0	0
47	0	-	0	1	-	1	-	-	-	0	0	0
48	0	-	0	0	1	1	-	-	-	0	0	0
49	0	-	0	1	0	1	-	-	-	0	1	1
50	0	-	0	0	0	0	-	-	-	0	0	0
51	0	-	0	0	0	0	-	-	-	0	0	0
52	0	-	0	0	1	1	-	-	-	0	0	0
53	0	-	0	0	0	0	-	-	-	0	0	0
54	0	-	0	0	0	0	-	-	-	0	0	0
55	0	-	0	0	0	0	-	-	-	1	0	1
56	0	-	0	1	0	1	-	-	-	0	0	0
57	0	-	0	0	0	0	-	-	-	0	0	0
58	0	-	0	0	1	1	-	-	-	0	0	0
59	0	-	0	0	0	0	-	1	1	0	0	0
60	0	-	0	0	0	0	-	-	-	0	0	0
61	0	-	0	2	0	2	-	-	-	0	0	0
62	0	-	0	0	0	0	-	-	-	0	0	0
63	0	-	0	1	0	1	-	-	-	0	0	0
64	0	-	0	0	0	0	-	-	-	0	0	0
65	0	-	0	0	0	0	-	-	-	0	0	0
66	0	-	0	0	0	0	-	-	-	0	1	1
67	0	-	0	1	1	2	-	-	-	0	0	0

Appendix table 8 (cont'd)

Set no. Total length (cm)	10			11			12			13		
	M	F	T	M	F	T	M	F	T	M	F	T
68	0	-	0	0	0	0	-	-	-	0	0	0
69	0	-	0	0	0	0	-	-	-	0	0	0
70	1	-	1	0	0	0	-	-	-	0	0	0
71	0	-	0	0	0	0	-	-	-	0	1	1
72	0	-	0	0	0	0	-	-	-	0	0	0
73	0	-	0	0	0	0	-	-	-	0	0	0
74	0	-	0	1	0	1	-	-	-	0	0	0
75	0	-	0	0	0	0	-	-	-	0	0	0
76	0	-	0	1	0	1	-	-	-	0	0	0
77	0	-	0	0	0	0	-	-	-	0	0	0
78	0	-	0	1	0	1	-	-	-	0	0	0
79	0	-	0	0	0	0	-	-	-	0	0	0
80	0	-	0	0	0	0	-	-	-	0	0	0
81	0	-	0	1	0	1	-	-	-	1	0	1
82	0	-	0	0	0	0	-	-	-	0	0	0
83	0	-	0	0	0	0	-	-	-	1	0	1
84	0	-	0	0	0	0	-	-	-	0	0	0
85	0	-	0	1	0	1	-	-	-	0	0	0
86	0	-	0	-	0	0	-	-	-	0	0	0
87	1	-	1	-	0	0	-	-	-	0	0	0
88	-	-	0	-	0	0	-	-	-	0	0	0
89	-	1	1	-	0	0	-	-	-	0	0	0
90	-	0	0	-	0	0	-	-	-	1	0	1
91	-	0	0	-	0	0	-	-	-	-	0	0
92	-	0	0	-	0	0	-	-	-	-	0	0
93	-	0	0	-	0	0	-	-	-	-	0	0
94	-	0	0	-	0	0	-	-	-	-	0	0
95	-	0	0	-	0	0	-	-	-	-	0	0
96	-	0	0	-	0	0	-	-	-	-	0	0
97	-	0	0	-	0	0	-	-	-	-	0	0
98	-	0	0	-	0	0	-	-	-	-	0	0
99	-	0	0	-	1	1	-	-	-	-	0	0
100	-	1	1	-	0	0	-	-	-	-	0	0
101	-	0	0	-	0	0	-	-	-	-	1	1
102	-	1	1	-	1	1	-	-	-	-	-	-
103	-	0	0	-	1	1	-	-	-	-	-	-
104	-	0	0	-	1	1	-	-	-	-	-	-
105	-	1	1	-	0	0	-	-	-	-	-	-
106	-	0	0	-	0	0	-	-	-	-	-	-
107	-	0	0	-	1	1	-	-	-	-	-	-
108	-	2	2	-	-	-	-	-	-	-	-	-
109	-	0	0	-	-	-	-	-	-	-	-	-
110	-	0	0	-	-	-	-	-	-	-	-	-

Appendix table 8 (cont'd)

Set no. Total length (cm)	10			11			12			13		
	M	F	T	M	F	T	M	F	T	M	F	T
111	-	0	0	-	-	-	-	-	-	-	-	-
112	-	0	0	-	-	-	-	-	-	-	-	-
113	-	0	0	-	-	-	-	-	-	-	-	-
114	-	0	0	-	-	-	-	-	-	-	-	-
115	-	0	0	-	-	-	-	-	-	-	-	-
116	-	0	0	-	-	-	-	-	-	-	-	-
117	-	0	0	-	-	-	-	-	-	-	-	-
118	-	1	1	-	-	-	-	-	-	-	-	-
Total	3	7	10	14	9	23	0	1	1	78	56	134

Appendix table 8 (cont'd)

Set no. Total length (cm)	15			16			22			25		
	M	F	T	M	F	T	M	F	T	M	F	T
25	-	-	-	-	-	-	-	-	-	-	-	-
26	-	-	-	-	-	-	-	-	-	1	-	1
27	-	-	-	-	-	-	-	-	-	0	3	3
28	-	-	-	-	-	-	-	-	-	1	-	1
29	-	-	-	-	-	-	-	-	-	1	-	1
30	-	-	-	-	-	-	-	-	-	0	-	0
31	-	-	-	-	-	-	-	-	-	0	-	0
32	-	-	-	-	-	-	-	-	-	1	-	1
33	-	-	-	-	-	-	-	-	-	-	-	-
34	-	-	-	-	-	-	-	-	-	-	-	-
35	-	-	-	-	-	-	-	-	-	-	-	-
36	-	-	-	-	-	-	-	-	-	-	-	-
37	-	-	-	-	-	-	-	-	-	-	-	-
38	-	-	-	-	-	-	-	-	-	-	-	-
39	-	-	-	-	-	-	-	-	-	-	-	-
40	-	-	-	-	-	-	-	-	-	-	-	-
41	-	1	1	-	-	-	-	-	-	-	-	-
42	-	0	0	-	-	-	-	-	-	-	-	-
43	-	0	0	-	-	-	-	-	-	-	-	-
44	-	0	0	-	-	-	-	-	-	-	-	-
45	-	0	0	-	-	-	-	-	-	-	-	-
46	-	0	0	-	-	-	-	-	-	-	-	-
47	-	0	0	-	-	-	-	-	-	-	-	-
48	-	0	0	-	-	-	-	-	-	-	-	-
49	-	0	0	-	-	-	-	-	-	-	-	-
50	-	0	0	-	-	-	-	-	-	-	-	-
51	-	0	0	-	-	-	-	-	-	-	-	-
52	-	0	0	-	-	-	-	-	-	-	-	-
53	-	0	0	-	-	-	-	-	-	-	-	-
54	-	1	1	-	-	-	-	-	-	-	-	-
55	-	0	0	-	-	-	-	-	-	-	-	-
56	-	0	0	-	-	-	-	-	-	-	-	-
57	-	0	0	-	-	-	-	-	-	-	-	-
58	-	0	0	-	-	-	-	-	-	-	-	-
59	1	0	1	-	-	-	-	-	-	-	-	-
60	0	0	0	-	-	-	-	-	-	-	-	-
61	0	0	0	-	-	-	-	-	-	-	-	-
62	0	0	0	-	-	-	-	-	-	-	-	-
63	0	0	0	-	-	-	-	-	-	-	-	-
64	0	0	0	-	-	-	-	-	-	-	-	-
65	0	0	0	-	-	-	-	-	-	-	-	-
66	0	0	0	1	-	1	-	-	-	-	-	-
67	0	0	0	0	1	1	-	-	-	-	-	-

Appendix table 8 (cont'd)

Set no. Total length (cm)	15			16			22			25		
	M	F	T	M	F	T	M	F	T	M	F	T
68	0	0	0	0	0	0	-	-	-	-	-	-
69	0	0	0	0	0	0	-	-	-	-	-	-
70	0	0	0	0	1	1	-	-	-	-	-	-
71	0	0	0	0	0	0	-	-	-	-	-	-
72	0	0	0	0	0	0	-	-	-	-	-	-
73	0	0	0	0	0	0	-	-	-	-	-	-
74	0	0	0	0	0	0	-	-	-	-	-	-
75	0	0	0	0	0	0	-	-	-	-	-	-
76	0	0	0	0	0	0	-	-	-	-	-	-
77	0	0	0	2	1	3	-	-	-	-	-	-
78	0	1	1	0	0	0	-	-	-	-	-	-
79	0	0	0	1	1	2	-	-	-	-	-	-
80	0	0	0	0	0	0	-	-	-	-	-	-
81	1	0	1	1	1	2	-	-	-	-	-	-
82	0	0	0	1	0	1	-	-	-	-	-	-
83	0	0	0	0	0	0	-	-	-	-	-	-
84	0	0	0	2	0	2	-	-	-	-	-	-
85	0	0	0	1	0	1	-	-	-	-	-	-
86	1	1	2	5	0	5	-	-	-	-	-	-
87	0	-	0	0	0	0	-	-	-	-	-	-
88	0	-	0	0	1	1	-	-	-	-	-	-
89	1	-	1	1	1	2	-	-	-	-	-	-
90	-	-	-	0	0	0	-	-	-	-	-	-
91	-	-	-	1	0	1	-	-	-	-	-	-
92	-	-	-	1	0	1	1	-	1	-	-	-
93	-	-	-	1	0	1	-	-	0	-	-	-
94	-	-	-	-	0	0	-	-	0	-	-	-
95	-	-	-	-	0	0	-	-	0	-	-	-
96	-	-	-	-	0	0	-	-	0	-	-	-
97	-	-	-	-	0	0	-	-	0	-	-	-
98	-	-	-	-	0	0	-	-	0	-	-	-
99	-	-	-	-	0	0	-	-	0	-	-	-
100	-	-	-	-	1	1	-	-	0	-	-	-
101	-	-	-	-	-	-	-	1	1	-	-	-
102	-	-	-	-	-	-	-	-	-	-	-	-
103	-	-	-	-	-	-	-	-	-	-	-	-
104	-	-	-	-	-	-	-	-	-	-	-	-
105	-	-	-	-	-	-	-	-	-	-	-	-
106	-	-	-	-	-	-	-	-	-	-	-	-
107	-	-	-	-	-	-	-	-	-	-	-	-
108	-	-	-	-	-	-	-	-	-	-	-	-
109	-	-	-	-	-	-	-	-	-	-	-	-
110	-	-	-	-	-	-	-	-	-	-	-	-

Appendix table 8 (cont'd)

Set no. Total length (cm)	15			16			22			25		
	M	F	T	M	F	T	M	F	T	M	F	T
111	-	-	-	-	-	-	-	-	-	-	-	-
112	-	-	-	-	-	-	-	-	-	-	-	-
113	-	-	-	-	-	-	-	-	-	-	-	-
114	-	-	-	-	-	-	-	-	-	-	-	-
115	-	-	-	-	-	-	-	-	-	-	-	-
116	-	-	-	-	-	-	-	-	-	-	-	-
117	-	-	-	-	-	-	-	-	-	-	-	-
118	-	-	-	-	-	-	-	-	-	-	-	-
Total	4	4	8	18	8	26	1	1	2	4	3	7

Appendix table 8 (cont'd)

Set no. Total length (cm)	26			28			38			41		
	M	F	T	M	F	T	M	F	T	M	F	T
25	-	-	-	-	-	-	-	-	-	-	-	-
26	-	-	-	-	-	-	-	-	-	-	-	-
27	-	-	-	-	-	-	-	-	-	-	-	-
28	-	-	-	-	-	-	-	-	-	-	-	-
29	-	-	-	-	-	-	-	-	-	-	-	-
30	-	-	-	-	-	-	-	-	-	-	-	-
31	-	-	-	-	-	-	-	-	-	-	-	-
32	-	-	-	-	-	-	-	-	-	-	-	-
33	-	-	-	-	-	-	-	-	-	-	-	-
34	-	1	1	-	-	-	-	-	-	-	-	-
35	-	1	1	-	-	-	-	-	-	-	-	-
36	-	0	0	-	-	-	-	-	-	-	-	-
37	2	2	4	-	-	-	-	-	-	-	-	-
38	1	0	1	-	-	-	-	-	-	-	-	-
39	1	0	1	-	1	1	-	-	-	-	-	-
40	5	0	5	-	0	0	-	-	-	1	-	1
41	0	1	1	-	0	0	-	-	-	0	-	0
42	0	0	0	-	1	1	-	-	-	1	-	1
43	0	0	0	-	1	1	-	-	-	0	-	0
44	1	0	1	-	-	0	-	-	-	1	1	2
45	1	0	1	-	-	0	-	-	-	1	0	1
46	1	1	2	-	-	0	-	-	-	0	1	1
47	-	0	0	-	-	0	-	-	-	0	0	0
48	-	0	0	-	-	0	-	-	-	0	1	1
49	-	0	0	-	-	0	-	-	-	1	0	1
50	-	0	0	-	-	0	-	-	-	1	2	3
51	-	0	0	-	-	0	-	-	-	1	1	2
52	-	0	0	-	-	0	-	-	-	2	0	2
53	-	0	0	-	-	0	-	-	-	1	1	2
54	-	1	1	1	-	1	-	1	1	0	0	0
55	-	-	-	0	-	0	-	0	0	0	0	0
56	-	-	-	0	-	0	-	0	0	0	1	1
57	-	-	-	0	-	0	-	1	1	1	1	2
58	-	-	-	0	-	0	-	0	0	0	1	1
59	-	-	-	0	-	0	-	1	1	1	0	1
60	-	-	-	1	-	1	-	0	0	0	1	1
61	-	-	-	-	-	-	-	0	0	0	0	0
62	-	-	-	-	-	-	-	0	0	0	0	0
63	-	-	-	-	-	-	-	0	0	0	0	0
64	-	-	-	-	-	-	-	2	2	0	0	0
65	-	-	-	-	-	-	-	0	0	0	0	0
66	-	-	-	-	-	-	-	0	0	1	0	1
67	-	-	-	-	-	-	-	1	1	-	0	0

Appendix table 8 (cont'd)

Set no.	26			28			38			41		
Total length (cm)	M	F	T	M	F	T	M	F	T	M	F	T
68	-	-	-	-	-	-	-	0	0	-	1	1
69	-	-	-	-	-	-	-	1	1	-	1	1
70	-	-	-	-	-	-	-	0	0	-	-	-
71	-	-	-	-	-	-	-	0	0	-	-	-
72	-	-	-	-	-	-	-	0	0	-	-	-
73	-	-	-	-	-	-	-	0	0	-	-	-
74	-	-	-	-	-	-	1	0	1	-	-	-
75	-	-	-	-	-	-	-	0	0	-	-	-
76	-	-	-	-	-	-	-	0	0	-	-	-
77	-	-	-	-	-	-	-	0	0	-	-	-
78	-	-	-	-	-	-	-	1	1	-	-	-
79	-	-	-	-	-	-	-	0	0	-	-	-
80	-	-	-	-	-	-	-	0	0	-	-	-
81	-	-	-	-	-	-	-	0	0	-	-	-
82	-	-	-	-	-	-	-	0	0	-	-	-
83	-	-	-	-	-	-	-	0	0	-	-	-
84	-	-	-	-	-	-	-	1	1	-	-	-
85	-	-	-	-	-	-	-	1	1	-	-	-
86	-	-	-	-	-	-	-	1	1	-	-	-
87	-	-	-	-	-	-	-	0	0	-	-	-
88	-	-	-	-	-	-	-	0	0	-	-	-
89	-	-	-	-	-	-	-	0	0	-	-	-
90	-	-	-	-	-	-	-	0	0	-	-	-
91	-	-	-	-	-	-	-	1	1	-	-	-
92	-	-	-	-	-	-	-	0	0	-	-	-
93	-	-	-	-	-	-	-	1	1	-	-	-
94	-	-	-	-	-	-	-	1	1	-	-	-
95	-	-	-	-	-	-	-	0	0	-	-	-
96	-	-	-	-	-	-	-	0	0	-	-	-
97	-	-	-	-	-	-	-	0	0	-	-	-
98	-	-	-	-	-	-	-	0	0	-	-	-
99	-	-	-	-	-	-	-	0	0	-	-	-
100	-	-	-	-	-	-	-	0	0	-	-	-
101	-	-	-	-	-	-	-	0	0	-	-	-
102	-	-	-	-	-	-	-	1	1	-	-	-
103	-	-	-	-	-	-	-	0	0	-	-	-
104	-	-	-	-	-	-	-	0	0	-	-	-
105	-	-	-	-	-	-	-	0	0	-	-	-
106	-	-	-	-	-	-	-	0	0	-	-	-
107	-	-	-	-	-	-	-	0	0	-	-	-
108	-	-	-	-	-	-	-	0	0	-	-	-
109	-	-	-	-	-	-	-	0	0	-	-	-
110	-	-	-	-	-	-	-	0	0	-	-	-

Appendix table 8 (cont'd)

Set no. Total length (cm)	26			28			38			41		
	M	F	T	M	F	T	M	F	T	M	F	T
111	-	-	-	-	-	-	-	0	0	-	-	-
112	-	-	-	-	-	-	-	0	0	-	-	-
113	-	-	-	-	-	-	-	0	0	-	-	-
114	-	-	-	-	-	-	-	1	1	-	-	-
115	-	-	-	-	-	-	-	-	-	-	-	-
116	-	-	-	-	-	-	-	-	-	-	-	-
117	-	-	-	-	-	-	-	-	-	-	-	-
118	-	-	-	-	-	-	-	-	-	-	-	-
Total	12	7	19	2	3	5	1	16	17	13	13	26

Appendix table 8 (cont'd)

Set no. Total length (cm)	42			43			45			46		
	M	F	T	M	F	T	M	F	T	M	F	T
25	-	-	-	-	-	-	-	-	-	-	-	-
26	-	-	-	-	-	-	-	-	-	-	-	-
27	-	-	-	-	-	-	-	-	-	-	-	-
28	-	-	-	-	-	-	-	-	-	-	-	-
29	-	-	-	-	-	-	-	-	-	-	-	-
30	-	-	-	-	-	-	-	-	-	-	-	-
31	-	-	-	-	-	-	-	-	-	-	-	-
32	-	-	-	-	-	-	-	-	-	-	-	-
33	-	-	-	-	-	-	-	-	-	-	-	-
34	-	-	-	-	-	-	-	-	-	-	-	-
35	-	-	-	-	-	-	-	-	-	-	-	-
36	-	-	-	-	2	2	-	-	-	-	-	-
37	-	-	-	-	0	0	-	-	-	-	-	-
38	-	-	-	-	0	0	-	-	-	-	-	-
39	-	-	-	1	0	1	-	-	-	-	-	-
40	-	-	-	1	1	2	-	-	-	1	-	1
41	-	-	-	1	1	2	-	-	-	0	-	0
42	-	-	-	1	0	1	-	-	-	0	1	1
43	-	-	-	1	1	2	-	-	-	0	0	0
44	-	-	-	1	3	4	-	-	-	3	3	6
45	1	1	2	2	1	3	-	-	-	4	3	7
46	0	1	1	1	0	1	-	-	-	2	2	4
47	0	0	0	5	1	6	-	-	-	1	6	7
48	1	1	2	5	2	7	-	-	-	1	6	7
49	0	0	0	1	0	1	-	-	-	2	5	7
50	0	1	1	1	1	2	-	-	-	12	3	15
51	1	0	1	1	2	3	-	-	-	4	7	11
52	1	0	1	0	0	0	-	-	-	5	6	11
53	0	0	0	1	0	1	-	-	-	3	9	12
54	1	0	1	1	0	1	-	-	-	3	2	5
55	0	1	1	-	0	0	-	-	-	4	1	5
56	0	2	2	-	1	1	-	-	-	3	2	5
57	1	0	1	-	0	0	-	-	-	3	0	3
58	-	0	0	-	0	0	1	-	1	2	2	4
59	-	0	0	-	0	0	-	-	0	3	1	4
60	-	0	0	-	0	0	-	-	0	2	2	4
61	-	0	0	-	0	0	-	-	0	1	0	1
62	-	0	0	-	0	0	-	-	0	2	0	2
63	-	0	0	-	0	0	-	1	1	1	2	3
64	-	0	0	-	0	0	-	-	-	1	-	1
65	-	0	0	-	0	0	-	-	-	-	-	-
66	-	0	0	-	0	0	-	-	-	-	-	-
67	-	0	0	-	0	0	-	-	-	-	-	-

Appendix table 8 (cont'd)

Set no.	42			43			45			46		
Total length (cm)	M	F	T	M	F	T	M	F	T	M	F	T
68	-	0	0	-	0	0	-	-	-	-	-	-
69	-	0	0	-	0	0	-	-	-	-	-	-
70	-	0	0	-	0	0	-	-	-	-	-	-
71	-	0	0	-	0	0	-	-	-	-	-	-
72	-	0	0	-	0	0	-	-	-	-	-	-
73	-	0	0	-	0	0	-	-	-	-	-	-
74	-	0	0	-	1	1	-	-	-	-	-	-
75	-	0	0	-	0	0	-	-	-	-	-	-
76	-	0	0	-	0	0	-	-	-	-	-	-
77	-	0	0	-	0	0	-	-	-	-	-	-
78	-	0	0	-	0	0	-	-	-	-	-	-
79	-	0	0	-	0	0	-	-	-	-	-	-
80	-	0	0	-	1	1	-	-	-	-	-	-
81	-	0	0	-	-	-	-	-	-	-	-	-
82	-	0	0	-	-	-	-	-	-	-	-	-
83	-	0	0	-	-	-	-	-	-	-	-	-
84	-	0	0	-	-	-	-	-	-	-	-	-
85	-	0	0	-	-	-	-	-	-	-	-	-
86	-	0	0	-	-	-	-	-	-	-	-	-
87	-	0	0	-	-	-	-	-	-	-	-	-
88	-	0	0	-	-	-	-	-	-	-	-	-
89	-	0	0	-	-	-	-	-	-	-	-	-
90	-	0	0	-	-	-	-	-	-	-	-	-
91	-	1	1	-	-	-	-	-	-	-	-	-
92	-	-	-	-	-	-	-	-	-	-	-	-
93	-	-	-	-	-	-	-	-	-	-	-	-
94	-	-	-	-	-	-	-	-	-	-	-	-
95	-	-	-	-	-	-	-	-	-	-	-	-
96	-	-	-	-	-	-	-	-	-	-	-	-
97	-	-	-	-	-	-	-	-	-	-	-	-
98	-	-	-	-	-	-	-	-	-	-	-	-
99	-	-	-	-	-	-	-	-	-	-	-	-
100	-	-	-	-	-	-	-	-	-	-	-	-
101	-	-	-	-	-	-	-	-	-	-	-	-
102	-	-	-	-	-	-	-	-	-	-	-	-
103	-	-	-	-	-	-	-	-	-	-	-	-
104	-	-	-	-	-	-	-	-	-	-	-	-
105	-	-	-	-	-	-	-	-	-	-	-	-
106	-	-	-	-	-	-	-	-	-	-	-	-
107	-	-	-	-	-	-	-	-	-	-	-	-
108	-	-	-	-	-	-	-	-	-	-	-	-
109	-	-	-	-	-	-	-	-	-	-	-	-
110	-	-	-	-	-	-	-	-	-	-	-	-

Appendix table 8 (cont'd)

Set no. Total length (cm)	42			43			45			46		
	M	F	T	M	F	T	M	F	T	M	F	T
111	-	-	-	-	-	-	-	-	-	-	-	-
112	-	-	-	-	-	-	-	-	-	-	-	-
113	-	-	-	-	-	-	-	-	-	-	-	-
114	-	-	-	-	-	-	-	-	-	-	-	-
115	-	-	-	-	-	-	-	-	-	-	-	-
116	-	-	-	-	-	-	-	-	-	-	-	-
117	-	-	-	-	-	-	-	-	-	-	-	-
118	-	-	-	-	-	-	-	-	-	-	-	-
Total	6	8	14	24	18	42	1	1	2	63	63	126

Appendix table 8 (cont'd)

Set no. Total length (cm)	47			48			49			53		
	M	F	T	M	F	T	M	F	T	M	F	T
25	-	-	-	-	-	-	-	-	-	-	-	-
26	-	-	-	-	-	-	-	-	-	-	-	-
27	-	-	-	-	-	-	-	-	-	-	-	-
28	-	-	-	-	-	-	-	-	-	-	-	-
29	-	-	-	-	-	-	-	-	-	-	-	-
30	-	-	-	-	-	-	-	-	-	-	-	-
31	-	-	-	-	-	-	-	-	-	-	-	-
32	-	-	-	-	-	-	-	-	-	-	-	-
33	-	-	-	-	-	-	-	-	-	-	-	-
34	-	-	-	-	-	-	-	-	-	1	-	1
35	-	-	-	-	-	-	-	-	-	-	-	0
36	-	-	-	-	-	-	-	-	-	-	-	0
37	-	-	-	-	-	-	-	-	-	-	-	0
38	-	-	-	1	-	1	-	-	-	-	-	0
39	-	-	-	0	-	0	-	-	-	-	-	0
40	-	-	-	1	-	1	-	-	-	-	-	0
41	-	-	-	0	-	0	-	-	-	-	-	0
42	-	-	-	0	-	0	-	-	-	-	-	0
43	-	-	-	0	-	0	-	-	-	-	-	0
44	-	-	-	1	1	2	-	-	-	-	-	0
45	-	-	-	0	0	0	-	-	-	-	-	0
46	-	-	-	0	0	0	-	-	-	-	1	1
47	-	-	-	0	0	0	-	-	-	-	0	0
48	-	-	-	0	0	0	-	-	-	-	0	0
49	-	-	-	0	0	0	1	-	1	-	0	0
50	-	-	-	1	1	2	0	-	0	-	1	1
51	-	-	-	0	0	0	0	-	0	-	0	0
52	-	-	-	0	0	0	0	-	0	-	0	0
53	-	-	-	0	0	0	0	-	0	-	0	0
54	-	-	-	0	0	0	0	-	0	-	0	0
55	-	-	-	0	0	0	0	-	0	-	0	0
56	-	-	-	1	0	1	0	-	0	-	0	0
57	-	-	-	0	1	1	0	-	0	-	0	0
58	-	-	-	0	0	0	0	-	0	-	0	0
59	-	-	-	0	0	0	0	-	0	-	0	0
60	-	-	-	0	0	0	0	-	0	-	0	0
61	-	-	-	0	0	0	0	-	0	-	0	0
62	-	-	-	0	0	0	0	-	0	-	0	0
63	-	-	-	0	0	0	0	-	0	-	0	0
64	-	-	-	1	0	1	0	-	0	-	0	0
65	-	-	-	0	0	0	0	-	0	-	0	0
66	-	-	-	0	0	0	0	-	0	-	0	0
67	-	-	-	0	0	0	0	-	0	-	0	0

Appendix table 8 (cont'd)

Set no. Total length (cm)	47			48			49			53		
	M	F	T	M	F	T	M	F	T	M	F	T
68	-	-	-	0	0	0	0	-	0	-	0	0
69	-	-	-	0	0	0	0	-	0	-	0	0
70	-	-	-	0	0	0	0	-	0	-	1	1
71	-	-	-	1	0	1	0	-	0	-	0	0
72	-	-	-	0	0	0	0	-	0	-	0	0
73	-	-	-	0	1	1	0	-	0	-	0	0
74	-	-	-	1	0	1	0	-	0	-	0	0
75	-	-	-	-	0	0	0	-	0	-	0	0
76	-	-	-	-	0	0	0	-	0	-	0	0
77	-	-	-	-	0	0	0	-	0	-	0	0
78	-	-	-	-	0	0	0	-	0	-	0	0
79	-	-	-	-	0	0	0	-	0	-	0	0
80	-	-	-	-	0	0	1	-	1	-	0	0
81	1	-	1	-	0	0	-	-	0	-	0	0
82	-	-	0	-	0	0	-	-	0	-	0	0
83	-	-	0	-	0	0	-	-	0	-	0	0
84	-	-	0	-	0	0	-	-	0	-	0	0
85	-	-	0	-	0	0	-	-	0	-	0	0
86	-	-	0	-	0	0	-	-	0	-	0	0
87	-	1	1	-	0	0	-	-	0	-	0	0
88	-	-	-	-	0	0	-	-	0	-	0	0
89	-	-	-	-	0	0	-	-	0	-	0	0
90	-	-	-	-	0	0	-	-	0	-	0	0
91	-	-	-	-	0	0	-	1	1	-	0	0
92	-	-	-	-	0	0	-	-	-	-	0	0
93	-	-	-	-	0	0	-	-	-	-	0	0
94	-	-	-	-	0	0	-	-	-	-	0	0
95	-	-	-	-	0	0	-	-	-	-	0	0
96	-	-	-	-	0	0	-	-	-	-	0	0
97	-	-	-	-	0	0	-	-	-	-	0	0
98	-	-	-	-	0	0	-	-	-	-	0	0
99	-	-	-	-	0	0	-	-	-	-	0	0
100	-	-	-	-	0	0	-	-	-	-	1	1
101	-	-	-	-	0	0	-	-	-	-	0	0
102	-	-	-	-	1	1	-	-	-	-	0	0
103	-	-	-	-	0	0	-	-	-	-	0	0
104	-	-	-	-	0	0	-	-	-	-	0	0
105	-	-	-	-	0	0	-	-	-	-	0	0
106	-	-	-	-	1	1	-	-	-	-	1	1
107	-	-	-	-	-	-	-	-	-	-	-	-
108	-	-	-	-	-	-	-	-	-	-	-	-
109	-	-	-	-	-	-	-	-	-	-	-	-
110	-	-	-	-	-	-	-	-	-	-	-	-

Appendix table 8 (cont'd)

Set no. Total length (cm)	47			48			49			53		
	M	F	T	M	F	T	M	F	T	M	F	T
111	-	-	-	-	-	-	-	-	-	-	-	-
112	-	-	-	-	-	-	-	-	-	-	-	-
113	-	-	-	-	-	-	-	-	-	-	-	-
114	-	-	-	-	-	-	-	-	-	-	-	-
115	-	-	-	-	-	-	-	-	-	-	-	-
116	-	-	-	-	-	-	-	-	-	-	-	-
117	-	-	-	-	-	-	-	-	-	-	-	-
118	-	-	-	-	-	-	-	-	-	-	-	-
Total	1	1	2	8	6	14	2	1	3	1	5	6

Appendix table 8 (cont'd)

Set no. Total length (cm)	55			Total		
	M	F	T	M	F	T
25	-	-	-	1	1	2
26	-	-	-	2	1	3
27	-	-	-	6	14	20
28	-	-	-	11	6	17
29	-	-	-	16	15	31
30	-	-	-	17	12	29
31	-	-	-	25	18	43
32	-	-	-	25	13	38
33	-	-	-	23	22	45
34	-	-	-	21	22	43
35	-	-	-	18	21	39
36	-	-	-	17	16	33
37	-	-	-	17	9	26
38	-	-	-	11	16	27
39	-	-	-	12	8	20
40	-	-	-	24	4	28
41	-	-	-	4	7	11
42	-	-	-	7	3	10
43	-	-	-	2	3	5
44	-	-	-	11	9	20
45	-	-	-	13	6	19
46	-	-	-	4	6	10
47	-	-	-	7	7	14
48	-	-	-	7	11	18
49	-	-	-	6	6	12
50	-	-	-	16	11	27
51	-	-	-	8	10	18
52	-	-	-	8	7	15
53	-	-	-	6	10	16
54	-	-	-	8	5	13
55	-	-	-	5	2	7
56	-	-	-	5	6	11
57	-	-	-	5	3	8
58	-	-	-	3	4	7
59	-	-	-	5	3	8
60	-	-	-	4	3	7
61	-	-	-	4	0	4
62	-	-	-	3	0	3
63	-	-	-	3	3	6
64	-	-	-	2	2	4
65	-	-	-	0	0	0
66	-	-	-	2	1	3
67	-	-	-	1	3	4

Appendix table 8 (cont'd)

Set no. Total length (cm)	55			Total		
	M	F	T	M	F	T
68	-	-	-	0	1	1
69	-	-	-	0	3	3
70	-	-	-	1	2	3
71	-	-	-	1	1	2
72	-	-	-	1	0	1
73	-	-	-	0	1	1
74	-	-	-	5	2	7
75	-	-	-	0	1	1
76	-	2	2	1	3	4
77	-	0	0	2	1	3
78	-	0	0	1	2	3
79	-	0	0	4	1	5
80	-	0	0	2	1	3
81	-	0	0	6	1	7
82	-	1	1	1	1	2
83	-	0	0	1	0	1
84	-	0	0	4	1	5
85	-	0	0	3	2	5
86	-	0	0	7	2	9
87	-	0	0	1	1	2
88	-	0	0	0	1	1
89	-	0	0	2	2	4
90	-	0	0	1	1	2
91	-	1	1	1	4	5
92	-	0	0	2	0	2
93	-	0	0	1	1	2
94	-	0	0	-	2	2
95	-	0	0	-	0	0
96	-	0	0	-	0	0
97	-	1	1	-	1	1
98	-	0	0	-	0	0
99	-	0	0	-	2	2
100	-	0	0	-	3	3
101	-	1	1	-	3	3
102	-	0	0	-	4	4
103	-	0	0	-	1	1
104	-	1	1	-	2	2
105	-	0	0	-	1	1
106	-	0	0	-	2	2
107	-	1	1	-	2	2
108	-	0	0	-	4	4
109	-	1	1	-	1	1
110	-	-	-	-	0	0

Appendix table 8 (cont'd)

Set no. Total length (cm)	55			Total		
	M	F	T	M	F	T
111	-	-	-	-	0	0
112	-	-	-	-	0	0
113	-	-	-	-	0	0
114	-	-	-	-	1	1
115	-	-	-	-	0	0
116	-	-	-	-	0	0
117	-	-	-	-	0	0
118	-	-	-	-	1	1
Total	0	9	9	443	395	838

Appendix table 9. Spiny dogfish length frequency. G.B. REED, April 18-24, 1983.

Set no. Total length (cm)	1			2			3			4		
	M	F	T	M	F	T	M	F	T	M	F	T
26	-	-	-	-	-	-	-	-	-	-	-	-
27	-	-	-	-	-	-	-	-	-	-	-	-
28	-	-	-	-	-	-	-	-	-	-	-	-
29	-	-	-	-	-	-	-	-	-	-	-	-
30	-	-	-	-	-	-	-	-	-	-	1	1
31	-	-	-	-	-	-	-	-	-	-	0	0
32	-	-	-	-	-	-	-	-	-	1	0	1
33	-	-	-	-	-	-	-	-	-	0	0	0
34	-	-	-	-	-	-	-	1	1	1	0	1
35	-	-	-	-	-	-	-	0	0	0	0	0
36	-	-	-	-	-	-	-	0	0	0	0	0
37	-	-	-	-	-	-	-	0	0	0	0	0
38	1	-	1	-	-	-	-	0	0	1	0	1
39	0	-	0	-	-	-	-	0	0	0	1	1
40	0	-	0	-	-	-	-	0	0	0	0	0
41	0	-	0	-	-	-	-	0	0	0	1	1
42	1	-	1	-	1	1	-	0	0	0	0	0
43	0	-	0	-	0	0	-	1	1	0	0	0
44	0	-	0	-	0	0	1	0	1	2	0	2
45	0	-	0	-	0	0	0	0	0	0	0	0
46	0	-	0	-	0	0	0	1	1	0	0	0
47	1	-	1	-	0	0	0	0	0	1	1	2
48	0	-	0	-	0	0	0	0	0	1	0	1
49	0	-	0	-	0	0	0	0	0	2	0	2
50	0	-	0	-	1	1	1	0	1	0	0	0
51	1	-	1	-	1	1	0	0	0	0	0	0
52	0	-	0	-	0	0	0	0	0	0	0	0
53	1	-	1	-	0	0	0	0	0	0	0	0
54	-	-	0	-	0	0	0	0	0	0	0	0
55	-	-	0	-	0	0	0	0	0	0	0	0
56	-	-	0	1	0	1	0	0	0	0	0	0
57	-	-	0	0	0	0	0	0	0	0	0	0
58	-	-	0	0	1	1	0	0	0	0	0	0
59	-	-	0	1	0	1	0	0	0	0	0	0
60	-	-	0	1	0	1	0	0	0	0	0	0
61	-	-	0	1	0	1	0	0	0	0	0	0
62	-	-	0	0	0	0	0	0	0	0	0	0
63	-	-	0	1	0	1	0	0	0	0	0	0
64	-	-	0	1	0	1	0	1	1	0	0	0
65	-	-	0	0	0	0	0	0	0	0	0	0
66	-	-	0	0	1	1	0	0	0	0	0	0
67	-	-	0	0	0	0	0	0	0	0	0	0
68	-	-	0	1	2	3	0	1	1	0	0	0

Appendix table 9 (cont'd)

Set no. Total length (cm)	1			2			3			4		
	M	F	T	M	F	T	M	F	T	M	F	T
69	-	-	0	0	0	0	0	0	0	0	0	0
70	-	-	0	0	1	1	0	0	0	0	0	0
71	-	-	0	0	0	0	0	0	0	0	0	0
72	-	-	0	0	1	1	0	0	0	0	0	0
73	-	-	0	0	0	0	0	0	0	0	0	0
74	-	-	0	0	0	0	0	0	0	0	0	0
75	-	-	0	0	0	0	0	0	0	0	0	0
76	-	-	0	1	0	1	1	0	1	0	0	0
77	-	-	0	1	0	1	0	1	1	0	0	0
78	-	-	0	0	0	0	0	0	0	0	0	0
79	-	-	0	2	1	3	0	1	1	0	0	0
80	-	-	0	2	0	2	0	0	0	0	1	1
81	-	-	0	0	0	0	0	0	0	0	0	0
82	-	-	0	0	0	0	2	0	2	0	0	0
83	-	-	0	0	0	0	1	0	1	1	0	1
84	-	-	0	0	1	1	0	0	0	-	0	0
85	-	-	0	0	0	0	0	0	0	-	1	1
86	-	-	0	0	1	1	1	0	1	-	0	0
87	-	-	0	1	0	1	0	0	0	-	0	0
88	-	-	0	0	0	0	1	0	1	-	0	0
89	-	-	0	1	0	1	-	0	0	-	0	0
90	-	-	0	0	1	1	-	0	0	-	0	0
91	-	-	0	0	2	2	-	0	0	-	0	0
92	-	-	0	0	1	1	-	0	0	-	0	0
93	-	-	0	0	0	0	-	0	0	-	0	0
94	-	-	0	1	0	1	-	0	0	-	1	1
95	-	-	0	-	0	0	-	0	0	-	0	0
96	-	-	0	-	0	0	-	2	2	-	0	0
97	-	-	0	-	1	1	-	0	0	-	0	0
98	-	-	0	-	1	1	-	0	0	-	0	0
99	-	-	0	-	0	0	-	0	0	-	2	2
100	-	-	0	-	0	0	-	0	0	-	1	1
101	-	-	0	-	0	0	-	0	0	-	0	0
102	-	-	0	-	1	1	-	1	1	-	1	1
103	-	-	0	-	0	0	-	0	0	-	1	1
104	-	-	0	-	0	0	-	1	1	-	1	1
105	-	1	1	-	0	0	-	0	0	-	0	0
106	-	-	-	-	0	0	-	0	0	-	0	0
107	-	-	-	-	1	1	-	0	0	-	0	0
108	-	-	-	-	0	0	-	0	0	-	1	1
109	-	-	-	-	0	0	-	2	2	-	1	1
110	-	-	-	-	0	0	-	-	-	-	1	1
111	-	-	-	-	0	0	-	-	-	-	0	0

Appendix table 9 (cont'd)

Set no.	1			2			3			4		
Total length (cm)	M	F	T	M	F	T	M	F	T	M	F	T
112	-	-	-	-	0	0	-	-	-	-	1	1
113	-	-	-	-	0	0	-	-	-	-	-	-
114	-	-	-	-	0	0	-	-	-	-	-	-
115	-	-	-	-	0	0	-	-	-	-	-	-
116	-	-	-	-	1	1	-	-	-	-	-	-
117	-	-	-	-	-	-	-	-	-	-	-	-
118	-	-	-	-	-	-	-	-	-	-	-	-
119	-	-	-	-	-	-	-	-	-	-	-	-
120	-	-	-	-	-	-	-	-	-	-	-	-
Total	5	1	6	16	21	37	8	13	21	10	17	27

Appendix table 9 (cont'd)

Set no. Total length (cm)	5			6			7			8		
	M	F	T	M	F	T	M	F	T	M	F	T
26	-	-	-	-	-	-	-	-	-	-	-	-
27	-	-	-	-	-	-	-	-	-	-	-	-
28	-	1	1	-	-	-	-	-	-	-	-	-
29	1	0	1	-	-	-	-	-	-	-	-	-
30	0	1	1	-	-	-	-	-	-	-	-	-
31	2	0	2	-	-	-	-	-	-	-	-	-
32	7	3	10	-	-	-	-	-	-	-	-	-
33	6	5	11	-	-	-	-	-	-	3	-	3
34	9	15	24	-	-	-	-	-	-	1	-	1
35	9	8	17	1	-	1	-	-	-	2	1	3
36	10	11	21	0	-	0	-	-	-	0	0	0
37	15	10	25	0	-	0	-	-	-	0	0	0
38	16	20	36	0	-	0	-	-	-	0	0	0
39	19	18	37	0	-	0	-	-	-	0	0	0
40	23	20	43	0	-	0	-	-	-	0	1	1
41	12	8	20	0	2	2	-	-	-	0	0	0
42	17	10	27	1	0	1	-	-	-	0	0	0
43	8	11	19	1	0	1	-	-	-	0	0	0
44	7	9	16	0	0	0	-	-	-	0	0	0
45	9	3	12	0	0	0	-	1	1	0	0	0
46	5	4	9	0	0	0	1	1	2	0	0	0
47	2	5	7	0	0	0	0	0	0	0	0	0
48	1	2	3	0	0	0	0	0	0	0	0	0
49	1	2	3	1	0	1	0	0	0	0	1	1
50	2	0	2	-	0	0	1	0	1	0	-	0
51	0	0	0	-	0	0	0	0	0	0	-	0
52	1	1	2	-	0	0	1	1	2	0	-	0
53	1	1	2	-	0	0	1	0	1	0	-	0
54	0	0	0	-	0	0	2	0	2	0	-	0
55	0	0	0	-	0	0	0	1	1	0	-	0
56	1	0	1	-	0	0	0	0	0	0	-	0
57	0	0	0	-	1	1	0	0	0	0	-	0
58	0	0	0	-	0	0	0	0	0	0	-	0
59	0	0	0	-	0	0	1	0	1	0	-	0
60	0	0	0	-	0	0	0	0	0	0	-	0
61	0	0	0	-	0	0	0	1	1	1	-	1
62	0	0	0	-	0	0	1	1	2	0	-	0
63	0	0	0	-	0	0	1	0	1	0	-	0
64	0	0	0	-	0	0	0	0	0	0	-	0
65	0	0	0	-	0	0	0	1	1	0	-	0
66	0	0	0	-	0	0	0	0	0	0	-	0
67	0	0	0	-	0	0	0	0	0	0	-	0
68	0	0	0	-	0	0	1	0	1	0	-	0

Appendix table 9 (cont'd)

Set no. Total length (cm)	5			6			7			8		
	M	F	T	M	F	T	M	F	T	M	F	T
69	0	0	0	-	0	0	0	0	0	0	-	0
70	0	0	0	-	0	0	1	0	1	0	-	0
71	0	0	0	-	0	0	0	0	0	0	-	0
72	0	0	0	-	0	0	0	0	0	0	-	0
73	0	0	0	-	0	0	0	0	0	1	-	1
74	0	0	0	-	0	0	1	0	1	-	-	-
75	1	0	1	-	0	0	0	0	0	-	-	-
76	-	0	0	-	0	0	0	0	0	-	-	-
77	-	0	0	-	0	0	0	0	0	-	-	-
78	-	0	0	-	0	0	0	0	0	-	-	-
79	-	0	0	-	0	0	0	0	0	-	-	-
80	-	0	0	-	0	0	1	0	1	-	-	-
81	-	0	0	-	0	0	1	0	1	-	-	-
82	-	0	0	-	0	0	0	0	0	-	-	-
83	-	0	0	-	0	0	1	0	1	-	-	-
84	-	0	0	-	0	0	0	0	0	-	-	-
85	-	0	0	-	0	0	1	0	1	-	-	-
86	-	0	0	-	0	0	0	0	0	-	-	-
87	-	0	0	-	0	0	1	0	1	-	-	-
88	-	0	0	-	0	0	-	0	0	-	-	-
89	-	0	0	-	0	0	-	1	1	-	-	-
90	-	0	0	-	0	0	-	0	0	-	-	-
91	-	1	1	-	0	0	-	0	0	-	-	-
92	-	0	0	-	0	0	-	0	0	-	-	-
93	-	0	0	-	0	0	-	0	0	-	-	-
94	-	0	0	-	0	0	-	0	0	-	-	-
95	-	1	1	-	0	0	-	1	1	-	-	-
96	-	0	0	-	0	0	-	0	0	-	-	-
97	-	0	0	-	0	0	-	0	0	-	-	-
98	-	0	0	-	0	0	-	0	0	-	-	-
99	-	1	1	-	0	0	-	0	0	-	-	-
100	-	0	0	-	0	0	-	0	0	-	-	-
101	-	1	1	-	0	0	-	1	1	-	-	-
102	-	0	0	-	1	1	-	-	-	-	-	-
103	-	0	0	-	-	-	-	-	-	-	-	-
104	-	1	1	-	-	-	-	-	-	-	-	-
105	-	-	-	-	-	-	-	-	-	-	-	-
106	-	-	-	-	-	-	-	-	-	-	-	-
107	-	-	-	-	-	-	-	-	-	-	-	-
108	-	-	-	-	-	-	-	-	-	-	-	-
109	-	-	-	-	-	-	-	-	-	-	-	-
110	-	-	-	-	-	-	-	-	-	-	-	-
111	-	-	-	-	-	-	-	-	-	-	-	-

Appendix table 9 (cont'd)

Set no. Total length (cm)	5			6			7			8		
	M	F	T	M	F	T	M	F	T	M	F	T
112	-	-	-	-	-	-	-	-	-	-	-	-
113	-	-	-	-	-	-	-	-	-	-	-	-
114	-	-	-	-	-	-	-	-	-	-	-	-
115	-	-	-	-	-	-	-	-	-	-	-	-
116	-	-	-	-	-	-	-	-	-	-	-	-
117	-	-	-	-	-	-	-	-	-	-	-	-
118	-	-	-	-	-	-	-	-	-	-	-	-
119	-	-	-	-	-	-	-	-	-	-	-	-
120	-	-	-	-	-	-	-	-	-	-	-	-
Total	185	173	358	4	4	8	17	10	27	8	3	11

Appendix table 9 (cont'd)

Set no. Total length (cm)	9			10			11			12		
	M	F	T	M	F	T	M	F	T	M	F	T
26	-	-	-	-	-	-	-	-	-	-	-	-
27	-	-	-	-	-	-	-	-	-	-	-	-
28	-	-	-	-	-	-	-	2	2	-	-	-
29	1	-	1	-	-	-	-	0	0	-	-	-
30	0	-	0	2	-	2	1	0	1	-	-	-
31	0	-	0	0	-	0	3	1	4	-	1	1
32	0	1	1	0	-	0	5	3	8	1	0	1
33	0	0	0	2	1	3	7	9	16	0	1	1
34	0	0	0	0	0	0	6	3	9	1	0	1
35	0	2	2	1	0	1	5	4	9	0	0	0
36	1	0	1	0	2	2	6	2	8	1	1	2
37	1	0	1	0	0	0	3	5	8	1	0	1
38	0	0	0	0	0	0	2	7	9	1	0	1
39	0	0	0	2	2	4	3	3	6	0	0	0
40	0	0	0	0	0	0	1	1	2	0	0	0
41	0	0	0	0	0	0	0	3	3	0	0	0
42	1	1	2	0	1	1	2	0	2	0	0	0
43	0	0	0	0	0	0	0	2	2	0	0	0
44	0	0	0	0	0	0	1	0	1	0	1	1
45	0	0	0	1	0	1	0	0	0	0	0	0
46	0	0	0	0	0	0	0	1	1	0	0	0
47	1	0	1	0	0	0	0	0	0	0	0	0
48	1	0	1	0	0	0	1	0	1	0	0	0
49	2	1	3	0	0	0	-	0	0	0	0	0
50	1	0	1	0	0	0	-	0	0	0	0	0
51	2	0	2	0	0	0	-	0	0	0	0	0
52	2	0	2	0	0	0	-	0	0	0	0	0
53	1	2	3	0	0	0	-	0	0	0	0	0
54	1	0	1	0	0	0	-	0	0	0	0	0
55	1	1	2	0	0	0	-	0	0	0	0	0
56	0	0	0	0	0	0	-	0	0	0	0	0
57	0	0	0	0	0	0	-	0	0	0	0	0
58	0	1	1	0	0	0	-	0	0	0	0	0
59	0	0	0	0	0	0	-	0	0	0	0	0
60	0	0	0	0	0	0	-	0	0	0	0	0
61	1	0	1	0	0	0	-	0	0	0	0	0
62	0	0	0	0	0	0	-	0	0	0	0	0
63	0	0	0	0	0	0	-	0	0	0	0	0
64	0	0	0	0	0	0	-	0	0	0	0	0
65	0	0	0	0	0	0	-	0	0	0	0	0
66	0	0	0	0	0	0	-	0	0	0	0	0
67	0	0	0	0	0	0	-	0	0	0	0	0
68	0	0	0	0	0	0	-	0	0	0	0	0

Appendix table 9 (cont'd)

Set no. Total length (cm)	9			10			11			12		
	M	F	T	M	F	T	M	F	T	M	F	T
69	1	0	1	0	0	0	-	0	0	0	0	0
70	0	0	0	0	0	0	-	0	0	0	0	0
71	0	0	0	0	0	0	-	0	0	0	0	0
72	1	0	1	0	0	0	-	0	0	0	0	0
73	-	0	0	0	0	0	-	0	0	0	0	0
74	-	0	0	0	0	0	-	0	0	0	0	0
75	-	0	0	0	0	0	-	0	0	0	0	0
76	-	0	0	0	0	0	-	0	0	0	0	0
77	-	0	0	0	0	0	-	0	0	0	0	0
78	-	0	0	0	0	0	-	0	0	0	0	0
79	-	0	0	0	0	0	-	0	0	0	0	0
80	-	0	0	1	0	1	-	0	0	0	0	0
81	-	0	0	-	0	0	-	0	0	0	0	0
82	-	0	0	-	0	0	-	0	0	0	0	0
83	-	0	0	-	0	0	-	0	0	0	0	0
84	-	0	0	-	0	0	-	0	0	0	0	0
85	-	0	0	-	0	0	-	0	0	1	0	1
86	-	0	0	-	0	0	-	0	0	-	0	0
87	-	0	0	-	0	0	-	0	0	-	0	0
88	-	0	0	-	0	0	-	0	0	-	0	0
89	-	0	0	-	0	0	-	0	0	-	0	0
90	-	0	0	-	0	0	-	0	0	-	0	0
91	-	0	0	-	0	0	-	0	0	-	0	0
92	-	0	0	-	0	0	-	0	0	-	0	0
93	-	0	0	-	0	0	-	0	0	-	0	0
94	-	0	0	-	0	0	-	0	0	-	0	0
95	-	0	0	-	0	0	-	0	0	-	0	0
96	-	0	0	-	0	0	-	0	0	-	0	0
97	-	0	0	-	0	0	-	0	0	-	1	1
98	-	0	0	-	0	0	-	0	0	-	0	0
99	-	0	0	-	0	0	-	0	0	-	1	1
100	-	0	0	-	0	0	-	0	0	-	0	0
101	-	0	0	-	0	0	-	0	0	-	0	0
102	-	0	0	-	0	0	-	1	1	-	0	0
103	-	0	0	-	1	1	-	-	-	-	0	0
104	-	0	0	-	0	0	-	-	-	-	0	0
105	-	0	0	-	0	0	-	-	-	-	0	0
106	-	0	0	-	0	0	-	-	-	-	0	0
107	-	1	1	-	0	0	-	-	-	-	0	0
108	-	-	-	-	0	0	-	-	-	-	0	0
109	-	-	-	-	0	0	-	-	-	-	0	0
110	-	-	-	-	1	1	-	-	-	-	0	0
111	-	-	-	-	1	1	-	-	-	-	0	0

Appendix table 9 (cont'd)

Set no. Total length (cm)	9			10			11			12		
	M	F	T	M	F	T	M	F	T	M	F	T
112	-	-	-	-	-	-	-	-	-	-	0	0
113	-	-	-	-	-	-	-	-	-	-	0	0
114	-	-	-	-	-	-	-	-	-	-	1	1
115	-	-	-	-	-	-	-	-	-	-	-	-
116	-	-	-	-	-	-	-	-	-	-	-	-
117	-	-	-	-	-	-	-	-	-	-	-	-
118	-	-	-	-	-	-	-	-	-	-	-	-
119	-	-	-	-	-	-	-	-	-	-	-	-
120	-	-	-	-	-	-	-	-	-	-	-	-
Total	19	10	29	9	9	18	46	47	93	6	7	13

Appendix table 9 (cont'd)

Set no. Total length (cm)	13			14			15			16		
	M	F	T	M	F	T	M	F	T	M	F	T
26	-	1	1	-	-	-	-	-	-	-	-	-
27	-	2	2	-	-	-	-	-	-	-	-	-
28	-	1	1	-	-	-	-	-	-	-	-	-
29	-	4	4	-	-	-	-	-	-	-	-	-
30	1	1	2	-	-	-	-	-	-	-	-	-
31	3	0	3	-	-	-	-	-	-	-	-	-
32	0	3	3	-	-	-	-	-	-	-	-	-
33	2	2	4	-	-	-	-	-	-	-	-	-
34	1	3	4	-	-	-	-	-	-	-	-	-
35	2	2	4	-	-	-	-	-	-	-	-	-
36	5	5	10	-	-	-	-	-	-	-	-	-
37	6	4	10	-	-	-	-	-	-	-	-	-
38	9	3	12	-	1	1	-	-	-	-	-	-
39	9	5	14	-	0	0	-	-	-	-	-	-
40	6	4	10	-	0	0	-	-	-	-	-	-
41	1	4	5	-	0	0	-	-	-	-	-	-
42	1	3	4	-	0	0	-	-	-	-	-	-
43	7	5	12	-	0	0	-	-	-	-	-	-
44	3	3	6	-	0	0	-	-	-	-	-	-
45	1	1	2	-	0	0	-	-	-	-	-	-
46	5	3	8	-	0	0	-	-	-	-	-	-
47	1	1	2	-	0	0	-	-	-	-	-	-
48	3	4	7	-	0	0	-	-	-	-	-	-
49	3	1	4	-	0	0	-	-	-	-	-	-
50	3	3	6	-	0	0	-	-	-	-	-	-
51	1	0	1	-	0	0	-	-	-	-	-	-
52	2	1	3	-	0	0	-	-	-	-	-	-
53	4	1	5	-	0	0	-	-	-	1	-	1
54	3	0	3	-	0	0	-	-	-	0	-	0
55	1	0	1	-	0	0	-	-	-	0	-	0
56	0	0	0	-	0	0	-	-	-	0	-	0
57	0	0	0	-	0	0	-	-	-	0	-	0
58	1	0	1	-	0	0	-	-	-	0	-	0
59	2	0	2	-	0	0	-	-	-	0	-	0
60	1	0	1	-	0	0	-	-	-	0	-	0
61	-	0	0	-	0	0	-	-	-	0	-	0
62	-	0	0	-	0	0	-	-	-	0	-	0
63	-	0	0	-	0	0	-	-	-	0	-	0
64	-	0	0	-	0	0	-	-	-	0	-	0
65	-	0	0	-	0	0	-	-	-	0	-	0
66	-	0	0	-	0	0	-	-	-	0	-	0
67	-	0	0	-	0	0	-	-	-	0	-	0
68	-	0	0	-	0	0	-	-	-	0	1	1

Appendix table 9 (cont'd)

Set no. Total length (cm)	13			14			15			16		
	M	F	T	M	F	T	M	F	T	M	F	T
69	-	0	0	-	0	0	-	-	-	0	0	0
70	-	1	1	-	0	0	-	-	-	0	1	1
71	-	-	-	-	0	0	-	-	-	0	0	0
72	-	-	-	-	0	0	-	-	-	0	0	0
73	-	-	-	-	0	0	-	-	-	0	0	0
74	-	-	-	-	0	0	-	-	-	0	0	0
75	-	-	-	-	0	0	-	-	-	0	0	0
76	-	-	-	-	0	0	-	-	-	0	0	0
77	-	-	-	-	0	0	-	-	-	0	1	1
78	-	-	-	-	0	0	-	-	-	0	1	1
79	-	-	-	-	0	0	-	-	-	0	0	0
80	-	-	-	-	0	0	-	-	-	0	0	0
81	-	-	-	-	0	0	-	-	-	0	0	0
82	-	-	-	-	0	0	-	-	-	0	1	1
83	-	-	-	-	0	0	-	-	-	0	0	0
84	-	-	-	-	0	0	-	-	-	0	0	0
85	-	-	-	-	0	0	-	-	-	0	0	0
86	-	-	-	-	1	1	-	-	-	1	1	2
87	-	-	-	-	0	0	-	-	-	0	0	0
88	-	-	-	-	0	0	-	-	-	1	0	1
89	-	-	-	-	0	0	-	-	-	0	1	1
90	-	-	-	-	0	0	-	-	-	1	0	1
91	-	-	-	-	0	0	-	-	-	-	0	0
92	-	-	-	-	1	1	-	-	-	-	1	1
93	-	-	-	-	-	-	-	-	-	-	0	0
94	-	-	-	-	-	-	-	-	-	-	0	0
95	-	-	-	-	-	-	-	-	-	-	0	0
96	-	-	-	-	-	-	-	-	-	-	1	1
97	-	-	-	-	-	-	-	-	-	-	-	-
98	-	-	-	-	-	-	-	-	-	-	-	-
99	-	-	-	-	-	-	-	-	-	-	-	-
100	-	-	-	-	-	-	-	-	-	-	-	-
101	-	-	-	-	-	-	-	-	-	-	-	-
102	-	-	-	-	-	-	-	-	-	-	-	-
103	-	-	-	-	-	-	-	-	-	-	-	-
104	-	-	-	-	-	-	-	-	-	-	-	-
105	-	-	-	-	-	-	-	-	-	-	-	-
106	-	-	-	-	-	-	-	-	-	-	-	-
107	-	-	-	-	-	-	-	-	-	-	-	-
108	-	-	-	-	-	-	-	1	1	-	-	-
109	-	-	-	-	-	-	-	1	1	-	-	-
110	-	-	-	-	-	-	-	-	-	-	-	-
111	-	-	-	-	-	-	-	-	-	-	-	-

Appendix table 9 (cont'd)

Set no. Total length (cm)	13			14			15			16		
	M	F	T	M	F	T	M	F	T	M	F	T
112	-	-	-	-	-	-	-	-	-	-	-	-
113	-	-	-	-	-	-	-	-	-	-	-	-
114	-	-	-	-	-	-	-	-	-	-	-	-
115	-	-	-	-	-	-	-	-	-	-	-	-
116	-	-	-	-	-	-	-	-	-	-	-	-
117	-	-	-	-	-	-	-	-	-	-	-	-
118	-	-	-	-	-	-	-	-	-	-	-	-
119	-	-	-	-	-	-	-	-	-	-	-	-
120	-	-	-	-	-	-	-	-	-	-	-	-
Total	87	71	158	0	3	3	0	2	2	4	9	13

Appendix table 9 (cont'd)

Set no. Total length (cm)	17			18			19			20		
	M	F	T	M	F	T	M	F	T	M	F	T
26	-	-	-	-	-	-	-	-	-	-	-	-
27	-	-	-	-	-	-	-	-	-	-	-	-
28	-	-	-	-	-	-	-	-	-	-	-	-
29	-	-	-	-	-	-	-	-	-	-	-	-
30	-	-	-	-	-	-	-	-	-	-	-	-
31	-	-	-	-	-	-	-	-	-	-	-	-
32	-	-	-	-	-	-	-	-	-	-	-	-
33	-	-	-	-	-	-	-	-	-	-	-	-
34	-	-	-	-	-	-	-	-	-	1	1	2
35	-	-	-	-	-	-	-	-	-	0	-	0
36	-	-	-	-	-	-	-	-	-	0	-	0
37	-	-	-	-	-	-	-	-	-	0	-	0
38	-	-	-	-	-	-	-	-	-	0	-	0
39	-	-	-	-	-	-	-	-	-	0	-	0
40	-	-	-	-	-	-	1	-	1	0	-	0
41	-	-	-	-	-	-	0	-	0	0	-	0
42	-	-	-	-	-	-	0	-	0	1	-	1
43	-	-	-	-	-	-	0	-	0	0	-	0
44	-	-	-	-	-	-	0	-	0	0	-	0
45	-	-	-	-	-	-	0	-	0	0	-	0
46	-	-	-	-	-	-	0	-	0	0	-	0
47	-	-	-	-	-	-	0	-	0	0	-	0
48	-	-	-	-	-	-	0	-	0	0	-	0
49	-	-	-	1	-	1	0	-	0	1	-	1
50	-	-	-	-	-	0	0	-	0	-	-	-
51	-	-	-	-	-	0	0	-	0	-	-	-
52	-	-	-	-	-	0	0	-	0	-	-	-
53	-	-	-	-	-	0	0	-	0	-	-	-
54	-	-	-	-	-	0	0	-	0	-	-	-
55	-	1	1	-	-	0	0	-	0	-	-	-
56	-	0	0	-	-	0	0	-	0	-	-	-
57	-	0	0	-	-	0	0	-	0	-	-	-
58	-	0	0	-	-	0	0	-	0	-	-	-
59	-	0	0	-	-	0	0	-	0	-	-	-
60	-	0	0	-	-	0	0	-	0	-	-	-
61	-	0	0	-	-	0	0	-	0	-	-	-
62	-	0	0	-	-	0	0	-	0	-	-	-
63	-	0	0	-	-	0	0	-	0	-	-	-
64	-	0	0	-	-	0	0	-	0	-	-	-
65	-	0	0	-	-	0	0	-	0	-	-	-
66	-	0	0	-	-	0	0	-	0	-	-	-
67	-	0	0	-	-	0	0	-	0	-	-	-
68	-	0	0	-	1	1	0	-	0	-	-	-

Appendix table 9 (cont'd)

Set no.	17			18			19			20		
Total length (cm)	M	F	T	M	F	T	M	F	T	M	F	T
69	-	0	0	-	0	0	0	-	0	-	-	-
70	-	0	0	-	0	0	0	-	0	-	-	-
71	-	0	0	-	0	0	0	-	0	-	-	-
72	-	0	0	-	0	0	0	-	0	-	-	-
73	-	0	0	-	0	0	0	-	0	-	-	-
74	-	0	0	-	0	0	0	-	0	-	-	-
75	-	0	0	-	0	0	0	-	0	-	-	-
76	-	0	0	-	0	0	0	-	0	-	-	-
77	-	0	0	-	0	0	0	-	0	-	-	-
78	-	0	0	-	0	0	0	-	0	-	-	-
79	-	0	0	-	0	0	0	-	0	-	-	-
80	-	0	0	-	0	0	0	-	0	-	-	-
81	-	0	0	-	0	0	1	-	1	-	-	-
82	-	0	0	-	0	0	0	-	0	-	-	-
83	-	0	0	-	0	0	0	-	0	-	-	-
84	-	0	0	-	0	0	0	-	0	-	-	-
85	-	0	0	-	0	0	0	-	0	-	-	-
86	-	0	0	-	0	0	0	-	0	-	-	-
87	-	0	0	-	0	0	0	-	0	-	-	-
88	-	0	0	-	0	0	0	-	0	-	-	-
89	-	0	0	-	0	0	0	-	0	-	-	-
90	-	0	0	-	1	1	1	-	1	-	-	-
91	-	0	0	-	0	0	-	-	0	-	-	-
92	-	0	0	-	0	0	-	-	0	-	-	-
93	-	0	0	-	0	0	-	-	0	-	-	-
94	-	0	0	-	0	0	-	-	0	-	-	-
95	-	0	0	-	0	0	-	-	0	-	-	-
96	-	0	0	-	0	0	-	-	0	-	-	-
97	-	1	1	-	0	0	-	-	0	-	-	-
98	-	0	0	-	1	1	-	-	0	-	-	-
99	-	0	0	-	-	-	-	-	0	-	-	-
100	-	1	1	-	-	-	-	-	0	-	-	-
101	-	0	0	-	-	-	-	-	0	-	-	-
102	-	0	0	-	-	-	-	1	1	-	-	-
103	-	0	0	-	-	-	-	-	-	-	-	-
104	-	0	0	-	-	-	-	-	-	-	-	-
105	-	1	1	-	-	-	-	-	-	-	-	-
106	-	0	0	-	-	-	-	-	-	-	-	-
107	-	0	0	-	-	-	-	-	-	-	-	-
108	-	0	0	-	-	-	-	-	-	-	-	-
109	-	0	0	-	-	-	-	-	-	-	-	-
110	-	0	0	-	-	-	-	-	-	-	-	-
111	-	1	1	-	-	-	-	-	-	-	-	-

Appendix table 9 (cont'd)

Set no. Total length (cm)	17			18			19			20		
	M	F	T	M	F	T	M	F	T	M	F	T
112	-	0	0	-	-	-	-	-	-	-	-	-
113	-	0	0	-	-	-	-	-	-	-	-	-
114	-	0	0	-	-	-	-	-	-	-	-	-
115	-	0	0	-	-	-	-	-	-	-	-	-
116	-	1	1	-	-	-	-	-	-	-	-	-
117	-	0	0	-	-	-	-	-	-	-	-	-
118	-	0	0	-	-	-	-	-	-	-	-	-
119	-	0	0	-	-	-	-	-	-	-	-	-
120	-	1	1	-	-	-	-	-	-	-	-	-
Total	0	7	7	1	3	4	3	1	4	3	1	4

Appendix table 9 (cont'd)

Set no. Total length (cm)	Total		
	M	F	T
26	-	1	1
27	-	2	2
28	-	4	4
29	2	4	6
30	4	3	7
31	8	2	10
32	14	10	24
33	20	18	38
34	20	23	43
35	20	17	37
36	23	21	44
37	26	19	45
38	30	31	61
39	33	29	62
40	31	26	57
41	13	18	31
42	24	16	40
43	16	19	35
44	14	13	27
45	11	5	16
46	11	10	21
47	6	7	13
48	7	6	13
49	11	5	16
50	8	4	12
51	4	1	5
52	6	3	9
53	9	4	13
54	6	0	6
55	2	3	5
56	2	0	2
57	0	1	1
58	1	2	3
59	4	0	4
60	2	0	2
61	3	1	4
62	1	1	2
63	2	0	2
64	1	1	2
65	0	1	1
66	0	1	1
67	0	0	0
68	2	5	7

Appendix table 9 (cont'd)

Set no. Total length (cm)	Total		
	M	F	T
69	1	0	1
70	1	3	4
71	0	0	0
72	1	1	2
73	1	0	1
74	1	0	1
75	1	0	1
76	2	0	2
77	1	2	3
78	0	1	1
79	2	2	4
80	4	1	5
81	2	0	2
82	2	1	3
83	3	0	3
84	0	1	1
85	2	1	3
86	2	3	5
87	2	0	2
88	2	0	2
89	1	2	3
90	2	2	4
91	0	3	3
92	0	3	3
93	0	0	0
94	1	1	2
95	-	2	2
96	-	3	3
97	-	3	3
98	-	2	2
99	-	4	4
100	-	2	2
101	-	2	2
102	-	6	6
103	-	2	2
104	-	3	3
105	-	2	2
106	-	0	0
107	-	2	2
108	-	2	2
109	-	4	4
110	-	2	2
111	-	2	2

Appendix table 9 (cont'd)

Set no. Total length (cm)	Total		
	M	F	T
112	-	1	1
113	-	0	0
114	-	1	1
115	-	0	0
116	-	2	2
117	-	0	0
118	-	0	0
119	-	0	0
120	-	1	1
Total	431	412	843

Appendix table 10. Brown cat shark length frequency. G.B. REED, February 7-28, 1983.

Set no.	1			5			13			41		
Total length (cm)	M	F	T	M	F	T	M	F	T	M	F	T
31	-	-	-	-	-	-	-	1	1	-	-	-
32	-	-	-	-	-	-	-	0	0	-	-	-
33	-	-	-	-	-	-	-	0	0	-	-	-
34	-	-	-	-	-	-	-	0	0	-	-	-
35	-	-	-	-	-	-	-	0	0	-	-	-
36	-	-	-	-	-	-	-	0	0	-	-	-
37	-	-	-	-	-	-	-	1	1	-	-	-
38	-	-	-	-	-	-	-	0	0	-	-	-
39	-	-	-	-	-	-	-	0	0	-	-	-
40	-	-	-	-	-	-	-	2	2	-	-	-
41	-	-	-	-	-	-	-	2	2	-	-	-
42	-	-	-	-	-	-	-	0	0	-	-	-
43	-	-	-	-	-	-	-	2	2	-	-	-
44	-	-	-	-	-	-	-	3	3	-	1	1
45	-	-	-	-	-	-	1	1	2	-	0	0
46	-	-	-	-	-	-	0	1	1	-	1	1
47	-	-	-	-	-	-	0	1	1	-	0	0
48	-	-	-	-	-	-	1	1	2	-	2	2
49	-	-	-	-	-	-	0	0	0	-	1	1
50	1	-	1	-	-	-	0	1	1	-	-	0
51	-	-	-	-	-	-	0	-	0	-	-	0
52	-	-	-	-	-	-	1	-	1	1	-	1
53	-	-	-	1	-	1	4	-	4	1	-	1
54	-	-	-	-	-	-	-	-	-	-	-	-
55	-	-	-	-	-	-	-	-	-	-	-	-
56	-	-	-	-	-	-	-	-	-	-	-	-
57	-	-	-	-	-	-	-	-	-	-	-	-
Total	1	0	1	1	0	1	7	16	23	2	5	7

Appendix table 10 (cont'd)

Set no. Total length (cm)	43			Total		
	M	F	T	M	F	T
31	-	-	-	-	1	1
32	-	-	-	-	0	0
33	-	-	-	-	0	0
34	-	-	-	-	0	0
35	-	-	-	-	0	0
36	-	-	-	-	0	0
37	-	-	-	-	1	1
38	-	-	-	-	0	0
39	-	-	-	-	0	0
40	-	-	-	-	2	2
41	-	-	-	-	2	2
42	-	-	-	-	0	0
43	-	-	-	-	2	2
44	-	1	1	-	5	5
45	-	-	0	1	1	2
46	-	-	0	0	2	2
47	-	-	0	0	1	1
48	-	-	0	1	3	4
49	-	-	0	0	1	1
50	-	-	0	1	1	2
51	2	-	2	2	-	2
52	1	-	1	3	-	3
53	1	-	1	7	-	7
54	0	-	0	0	-	0
55	2	-	2	2	-	2
56	0	-	0	0	-	0
57	1	-	1	1	-	1
Total	7	1	8	18	22	40

Appendix table 11. Brown cat shark length frequency. G.B. REED, April 18-24, 1983.

Set no. Total length (cm)	1			2			3			4		
	M	F	T	M	F	T	M	F	T	M	F	T
28	-	-	-	-	-	-	-	-	-	1	-	1
29	-	-	-	-	-	-	-	-	-	0	-	0
30	-	-	-	-	-	-	-	-	-	0	-	0
31	-	-	-	-	-	-	-	-	-	0	-	0
32	-	-	-	-	-	-	-	-	-	0	-	0
33	-	-	-	-	-	-	-	-	-	0	-	0
34	-	-	-	-	-	-	-	-	-	0	-	0
35	-	-	-	-	-	-	-	-	-	0	-	0
36	-	-	-	-	-	-	-	-	-	0	-	0
37	-	-	-	-	-	-	-	1	1	0	-	0
38	-	-	-	-	-	-	-	-	0	0	-	0
39	-	-	-	-	-	-	-	-	0	0	-	0
40	-	-	-	-	-	-	-	-	0	0	1	1
41	-	-	-	-	-	-	-	-	0	0	0	0
42	-	-	-	-	-	-	-	-	0	0	0	0
43	-	-	-	-	-	-	-	-	0	0	2	2
44	-	1	1	-	1	1	-	-	0	0	2	2
45	-	-	0	-	-	0	-	-	0	0	5	5
46	-	-	0	1	-	1	1	-	1	0	8	8
47	-	-	0	0	-	0	0	-	0	1	6	7
48	-	-	0	0	-	0	0	-	0	1	8	9
49	-	-	0	0	-	0	0	-	0	0	7	7
50	-	-	0	0	-	0	0	-	0	1	1	2
51	-	-	0	0	-	0	0	-	0	4	3	7
52	2	-	2	1	-	1	0	-	0	1	1	2
53	-	-	-	1	-	1	0	-	0	4	-	4
54	-	-	-	-	-	-	1	-	1	1	-	1
55	-	-	-	-	-	-	0	-	0	0	-	0
56	-	-	-	-	-	-	0	-	0	1	-	1
57	-	-	-	-	-	-	1	-	1	-	-	-
58	-	-	-	-	-	-	-	-	-	-	-	-
59	-	-	-	-	-	-	-	-	-	-	-	-
Total	2	1	3	3	1	4	3	1	4	15	44	59

Appendix table 11 (cont'd)

Set no.	6			7			10			12		
Total length (cm)	M	F	T	M	F	T	M	F	T	M	F	T
28	-	-	-	-	-	-	-	-	-	-	-	-
29	-	-	-	-	-	-	-	-	-	-	-	-
30	-	-	-	-	-	-	-	-	-	-	-	-
31	-	-	-	-	-	-	-	-	-	-	-	-
32	-	-	-	-	-	-	-	-	-	-	-	-
33	-	-	-	-	-	-	-	-	-	-	-	-
34	-	-	-	-	-	-	-	-	-	-	-	-
35	-	-	-	-	-	-	-	-	-	-	-	-
36	-	-	-	-	-	-	-	-	-	-	-	-
37	-	-	-	-	-	-	-	-	-	-	-	-
38	-	-	-	-	-	-	-	-	-	-	-	-
39	-	-	-	-	-	-	-	-	-	-	-	-
40	-	-	-	-	-	-	-	-	-	-	-	-
41	-	-	-	-	-	-	-	-	-	-	-	-
42	-	-	-	-	-	-	-	-	-	-	-	-
43	-	-	-	-	-	-	-	-	-	-	-	-
44	-	1	1	-	-	-	-	-	-	-	-	-
45	-	-	0	-	-	-	-	-	-	-	-	-
46	-	-	0	-	-	-	-	-	-	-	1	1
47	-	-	0	-	-	-	-	-	-	-	-	0
48	-	-	0	-	-	-	-	-	-	-	-	0
49	-	-	0	-	-	-	-	-	-	-	-	0
50	-	-	0	-	1	1	-	-	-	-	-	0
51	-	-	0	-	-	-	-	-	-	-	-	0
52	-	-	0	-	-	-	-	-	-	-	-	0
53	-	-	0	-	-	-	-	-	-	-	-	0
54	-	-	0	-	-	-	-	1	1	-	-	0
55	-	-	0	-	-	-	-	-	-	1	-	1
56	1	-	1	-	-	-	-	-	-	-	-	-
57	0	-	0	-	-	-	-	-	-	-	-	-
58	0	-	0	-	-	-	-	-	-	-	-	-
59	1	-	1	-	-	-	-	-	-	-	-	-
Total	2	1	3	0	1	1	0	1	1	1	1	2

Appendix table 11 (cont'd)

Set no. Total length (cm)	14			15			16			17		
	M	F	T	M	F	T	M	F	T	M	F	T
28	-	-	-	-	-	-	-	-	-	-	-	-
29	-	-	-	-	-	-	-	-	-	-	-	-
30	-	-	-	-	-	-	-	-	-	-	-	-
31	-	-	-	-	-	-	-	-	-	-	-	-
32	-	-	-	-	-	-	-	-	-	-	-	-
33	-	-	-	-	-	-	-	-	-	-	-	-
34	-	-	-	-	-	-	-	-	-	-	-	-
35	-	-	-	-	-	-	-	-	-	-	-	-
36	-	-	-	-	-	-	-	-	-	-	-	-
37	-	-	-	-	-	-	-	-	-	-	-	-
38	-	-	-	-	-	-	-	-	-	-	-	-
39	-	-	-	-	-	-	-	-	-	-	-	-
40	-	-	-	-	-	-	-	-	-	-	-	-
41	-	-	-	-	-	-	-	-	-	-	-	-
42	-	-	-	-	-	-	-	-	-	-	-	-
43	-	-	-	-	-	-	-	-	-	-	-	-
44	-	-	-	-	-	-	-	1	1	-	-	-
45	-	-	-	-	-	-	-	1	1	-	-	-
46	-	1	1	-	-	-	-	-	0	-	-	-
47	-	-	0	-	-	-	-	-	0	-	1	1
48	-	-	0	-	-	-	-	-	0	-	-	-
49	1	-	1	-	1	1	-	-	0	-	-	-
50	0	-	0	-	-	-	-	-	0	-	-	-
51	0	-	0	-	-	-	-	-	0	-	-	-
52	0	-	0	-	-	-	-	-	0	-	-	-
53	1	-	1	-	-	-	1	-	1	-	-	-
54	2	-	2	-	-	-	2	-	2	-	-	-
55	-	-	-	-	-	-	-	-	-	-	-	-
56	-	-	-	-	-	-	-	-	-	-	-	-
57	-	-	-	-	-	-	-	-	-	-	-	-
58	-	-	-	-	-	-	-	-	-	-	-	-
59	-	-	-	-	-	-	-	-	-	-	-	-
Total	4	1	5	0	1	1	3	2	5	0	1	1

Appendix table 11 (cont'd)

Set no. Total length (cm)	18			19			Total		
	M	F	T	M	F	T	M	F	T
28	-	-	-	-	-	-	1	-	1
29	-	-	-	-	-	-	0	-	0
30	-	-	-	-	-	-	0	-	0
31	-	-	-	-	-	-	0	-	0
32	-	-	-	-	-	-	0	-	0
33	-	-	-	-	-	-	0	-	0
34	-	-	-	-	-	-	0	-	0
35	-	-	-	-	-	-	0	-	0
36	-	-	-	-	-	-	0	-	0
37	-	-	-	-	-	-	0	1	1
38	-	-	-	-	-	-	0	0	0
39	-	-	-	-	-	-	0	0	0
40	-	-	-	-	-	-	0	1	1
41	-	-	-	-	-	-	0	0	0
42	-	-	-	-	-	-	0	0	0
43	-	-	-	1	-	1	1	2	3
44	-	-	-	0	-	0	0	6	6
45	-	-	-	0	-	0	0	6	6
46	-	1	1	1	-	1	3	11	14
47	-	1	1	0	1	1	1	9	10
48	-	1	1	0	-	0	1	9	10
49	1	-	1	0	-	0	2	8	10
50	0	-	0	0	-	0	1	2	3
51	2	-	2	1	-	1	7	3	10
52	1	-	1	0	-	0	5	1	6
53	1	-	1	0	-	0	8	0	8
54	-	-	-	1	-	1	7	1	8
55	-	-	-	-	-	-	1	-	1
56	-	-	-	-	-	-	2	-	2
57	-	-	-	-	-	-	1	-	1
58	-	-	-	-	-	-	0	-	0
59	-	-	-	-	-	-	1	-	1
Total	5	3	8	4	1	5	42	60	102

Appendix table 12. Length frequency of other species sampled. G.B. REED, February 7-28, 1983.

Fork length (cm)	Set no. by species											
	Chinook salmon	Pacific herring			Sablefish							
	2	22			21		23		Total			
	M	M	F	T	M	F	M	F	M	F	T
12	-	-	-	-	-	-	-	-	-	-	-
13	-	-	-	-	-	-	-	-	-	-	-
14	-	-	-	-	-	-	-	-	-	-	-
15	-	-	-	-	-	-	-	-	-	-	-
16	-	-	1	1	-	-	-	-	-	-	-
17	-	3	1	4	-	-	-	-	-	-	-
18	-	5	2	7	-	-	-	-	-	-	-
19	-	5	8	13	-	-	-	-	-	-	-
20	-	7	6	13	-	-	-	-	-	-	-
21	-	7	10	17	-	-	-	-	-	-	-
22	-	3	6	9	-	-	-	-	-	-	-
23	-	6	9	15	-	-	-	-	-	-	-
24	-	4	6	10	-	-	-	-	-	-	-
25	-	2	2	4	-	-	-	-	-	-	-
26	-	0	2	2	-	-	-	-	-	-	-
27	-	0	1	1	-	-	-	-	-	-	-
28	-	1	0	1	-	-	-	-	-	-	-
29	-	-	0	0	-	-	-	-	-	-	-
30	-	-	0	0	-	-	-	-	-	-	-
31	-	-	0	0	-	-	-	-	-	-	-
32	-	-	0	0	-	-	-	-	-	-	-
33	-	-	1	1	-	-	1	-	1	-	1
34	-	-	-	-	1	-	2	1	3	1	4
35	-	-	-	-	1	-	0	0	1	0	1
36	-	-	-	-	-	-	0	0	0	0	0
37	-	-	-	-	-	-	0	0	0	0	0
38	-	-	-	-	-	-	0	0	0	0	0
39	-	-	-	-	-	-	0	0	0	0	0
40	-	-	-	-	-	1	0	0	0	1	1
41	-	-	-	-	-	-	0	0	0	0	0
42	-	-	-	-	-	-	0	0	0	0	0
43	-	-	-	-	-	-	0	0	0	0	0
44	-	-	-	-	-	-	1	0	0	0	0
45	-	-	-	-	-	-	1	0	1	0	1
46	-	-	-	-	-	-	-	1	1	1	2
52	1	-	-	-	-	-	-	-	-	-	-
Total	1	43	55	98	2	1	5	2	7	3	10

Appendix table 12 (cont'd)

	Set no. by species	
	Flathead sole	Slender sole
Fork length (cm)	27	27
	T	T
12	-	3
13	-	3
14	-	2
15	-	8
16	-	14
17	-	11
18	2	25
19	2	25
20	1	20
21	0	21
22	0	21
23	0	23
24	1	8
25	1	6
26	3	5
27	3	4
28	3	2
29	3	0
30	2	1
31	1	-
32	3	-
33	0	-
34	1	-
35	1	-
36	-	-
37	-	-
38	-	-
39	-	-
40	-	-
41	-	-
42	-	-
43	-	-
44	-	-
45	-	-
46	-	-
52	-	-
Total	27	202

Appendix table 13. English sole length frequency. G.B. REED, February 7-28, 1983.

Set no. Total length (cm)	23			26			28			30		
	M	F	T	M	F	T	M	F	T	M	F	T
9	-	-	2	-	-	-	-	-	-	-	-	-
10	-	-	5	-	-	-	-	-	-	-	-	-
11	-	-	5	-	-	-	-	-	-	-	-	-
12	-	-	4	-	-	-	-	-	-	-	-	-
13	-	-	0	-	-	-	-	-	-	-	-	-
14	-	-	2	-	-	-	-	-	-	-	-	-
15	-	-	4	-	-	-	-	-	-	-	-	-
16	-	-	14	-	-	-	-	-	-	-	-	-
17	-	-	14	-	-	-	-	-	-	-	-	1
18	-	-	23	-	-	-	-	-	-	-	-	0
19	-	-	18	-	-	-	-	3	3	-	-	0
20	-	-	26	-	-	-	1	1	2	-	-	0
21	-	-	30	-	-	-	-	1	1	-	-	0
22	-	-	11	-	-	-	-	0	0	-	-	0
23	-	-	7	1	-	1	-	2	2	-	-	0
24	-	-	3	1	-	1	-	0	0	-	-	0
25	-	-	2	2	-	2	-	1	1	-	-	0
26	-	-	2	1	-	1	-	0	0	-	-	0
27	-	-	1	3	-	3	-	1	1	-	-	0
28	-	-	1	2	-	2	-	0	0	-	1	1
29	-	-	0	6	1	7	-	1	1	-	1	1
30	-	-	0	4	0	4	-	2	2	-	1	1
31	-	-	1	4	0	4	-	3	3	-	2	2
32	-	-	0	3	1	4	-	5	5	-	2	2
33	-	-	0	3	1	4	-	6	6	1	4	5
34	-	-	0	4	-	4	-	8	8	-	4	4
35	-	-	0	3	-	3	-	4	4	-	9	9
36	-	-	2	1	-	1	-	8	8	-	6	6
37	-	-	0	1	-	1	-	2	2	-	3	3
38	-	-	0	-	-	-	-	4	4	-	4	4
39	-	-	0	-	-	-	-	5	5	-	7	7
40	-	-	0	-	-	-	-	2	2	-	0	0
41	-	-	0	-	-	-	-	3	3	-	6	6
42	-	-	1	-	-	-	-	1	1	-	0	0
43	-	-	-	-	-	-	-	3	3	-	4	4
44	-	-	-	-	-	-	-	1	1	-	2	2
45	-	-	-	-	-	-	-	0	0	-	1	1
46	-	-	-	-	-	-	-	3	3	-	1	1
47	-	-	-	-	-	-	-	-	-	-	0	0
48	-	-	-	-	-	-	-	-	-	-	0	0
49	-	-	-	-	-	-	-	-	-	-	1	1
Total	0	0	178	39	3	42	1	70	71	1	59	61

Appendix table 13 (cont'd)

Set no. Total length (cm)	31			34			Total		
	M	F	T	M	F	T	M	F	T
9	-	-	-	-	-	-	-	-	2
10	-	-	-	-	-	-	-	-	5
11	-	-	-	1	1	2	1	1	7
12	-	-	-	0	1	1	0	1	5
13	-	-	-	1	2	3	1	2	3
14	-	-	-	0	3	3	0	3	5
15	-	-	-	1	2	3	1	2	7
16	-	-	-	4	3	7	4	3	21
17	-	-	-	5	4	9	5	4	24
18	-	-	-	7	5	12	7	5	35
19	-	-	-	6	7	13	6	10	34
20	-	-	-	12	12	24	13	13	52
21	1	-	1	10	14	24	11	15	56
22	0	-	0	14	28	42	14	28	53
23	1	-	1	9	20	29	11	22	40
24	1	-	1	8	15	23	10	15	28
25	3	-	3	2	17	19	7	18	27
26	4	-	4	5	11	16	10	11	23
27	5	-	5	3	9	12	11	10	22
28	6	1	7	1	4	5	9	6	16
29	9	2	11	2	7	9	17	12	29
30	9	0	9	2	6	8	15	9	24
31	4	2	6	2	8	10	10	15	26
32	5	8	13	-	4	4	8	20	28
33	2	3	5	-	1	1	6	15	21
34	2	10	12	-	3	3	6	25	31
35	2	2	4	-	1	1	5	16	21
36	1	5	6	-	0	0	2	19	23
37	0	4	4	-	3	3	1	12	13
38	2	3	5	-	2	2	2	13	15
39	1	1	2	-	0	0	1	13	14
40	-	6	6	-	1	1	-	9	9
41	-	2	2	-	0	0	-	11	11
42	-	0	0	-	1	1	-	2	3
43	-	2	2	-	-	-	-	9	9
44	-	5	5	-	-	-	-	8	8
45	-	1	1	-	-	-	-	2	2
46	-	0	0	-	-	-	-	4	4
47	-	1	1	-	-	-	-	1	1
48	-	-	-	-	-	-	-	0	0
49	-	-	-	-	-	-	-	1	1
Total	58	58	116	95	195	290	194	385	758

Appendix table 14. Rock sole length frequency. G.B. REED, February 7-28, 1983.

Set no. Total length (cm)	23			30			34			Total		
	M	F	T	M	F	T	M	F	T	M	F	T
21	-	-	-	-	-	-	1	-	1	1	-	1
22	-	-	-	1	-	1	0	-	0	1	-	1
23	-	-	-	0	-	0	0	-	0	0	-	0
24	-	-	-	0	-	0	0	-	0	0	-	0
25	-	-	-	0	-	0	1	-	1	1	-	1
26	-	-	-	0	-	0	1	-	1	1	-	1
27	2	-	2	1	-	1	3	-	3	6	-	6
28	1	-	1	3	-	3	0	-	0	4	-	4
29	1	-	1	1	-	1	0	-	0	2	-	2
30	2	-	2	0	1	1	0	1	1	2	2	4
31	3	-	3	1	1	2	0	1	1	4	2	6
32	-	-	0	-	0	0	0	0	0	0	0	0
33	-	1	1	-	0	0	0	1	1	0	2	2
34	-	0	0	-	0	0	0	2	2	0	2	2
35	-	0	0	-	0	0	1	1	2	1	1	2
36	-	0	0	-	0	0	-	0	0	-	0	0
37	-	0	0	-	1	1	-	1	1	-	2	2
38	-	1	1	-	1	1	-	0	0	-	2	2
39	-	-	-	-	1	1	-	0	0	-	1	1
40	-	-	-	-	-	-	-	0	0	-	0	0
41	-	-	-	-	-	-	-	0	0	-	0	0
42	-	-	-	-	-	-	-	0	0	-	0	0
43	-	-	-	-	-	-	-	1	1	-	1	1
Total	9	2	11	7	5	12	7	8	15	23	15	38

Appendix table 15. Pacific cod length frequency. G.B. REED, February 7-28, 1983.

Set no. Total length (cm)	15			20			21			22		
	M	F	T	M	F	T	M	F	T	M	F	T
16	-	-	-	-	-	-	-	-	-	-	-	-
17	-	-	-	-	-	-	-	-	-	-	-	-
18	-	-	-	-	-	-	-	-	-	-	-	-
19	-	-	-	-	-	-	-	-	-	-	-	-
20	-	-	-	-	-	-	-	-	-	-	-	-
21	-	-	-	-	-	-	-	2	2	-	-	-
22	-	-	-	-	1	1	-	2	2	-	-	-
23	-	-	-	-	-	-	1	1	2	-	-	-
24	-	-	-	-	-	-	1	0	1	-	-	-
25	-	-	-	-	-	-	1	4	5	-	1	1
26	-	-	-	-	-	-	0	4	4	1	1	2
27	-	-	-	-	-	-	1	0	1	0	0	0
28	-	-	-	-	-	-	0	0	0	0	1	1
29	-	-	-	-	-	-	1	0	1	0	0	0
30	-	-	-	-	-	-	-	1	1	0	0	0
31	-	-	-	-	-	-	-	0	0	0	0	0
32	-	-	-	-	-	-	-	2	2	0	0	0
33	-	-	-	-	-	-	-	0	0	0	0	0
34	-	-	-	-	-	-	-	0	0	0	0	0
35	-	-	-	-	-	-	-	0	0	0	0	0
36	-	-	-	-	-	-	-	0	0	0	0	0
37	-	-	-	-	-	-	-	0	0	0	0	0
38	-	-	-	-	-	-	-	0	0	0	0	0
39	-	-	-	-	-	-	-	0	0	0	0	0
40	-	-	-	-	-	-	-	0	0	0	0	0
41	-	-	-	-	-	-	-	1	1	0	0	0
42	-	-	-	-	-	-	-	1	1	0	0	0
43	-	-	-	-	-	-	-	0	0	0	0	0
44	-	-	-	-	-	-	-	0	0	0	0	0
45	-	-	-	-	-	-	-	0	0	0	0	0
46	-	-	-	-	-	-	-	1	1	1	2	3
47	-	-	-	-	-	-	-	0	0	1	0	1
48	-	-	-	-	-	-	-	0	0	0	0	0
49	-	-	-	-	-	-	-	0	0	0	0	0
50	-	-	-	-	-	-	-	0	0	0	0	0
51	-	-	-	-	-	-	-	0	0	0	0	0
52	-	-	-	-	-	-	-	0	0	0	0	0
53	-	1	1	-	-	-	-	1	1	0	0	0
54	-	-	-	-	-	-	-	-	-	0	1	1
55	-	-	-	-	-	-	-	-	-	0	0	0
56	-	-	-	-	-	-	-	-	-	0	0	0
57	-	-	-	-	-	-	-	-	-	1	0	1
58	-	-	-	-	-	-	-	-	-	0	0	0

Appendix table 15 (cont'd)

Set no. Total length (cm)	15			20			21			22		
	M	F	T	M	F	T	M	F	T	M	F	T
59	-	-	-	-	-	-	-	-	-	0	0	0
60	-	-	-	-	-	-	-	-	-	0	0	0
61	-	-	-	-	-	-	-	-	-	0	1	1
62	-	-	-	-	-	-	-	-	-	1	-	1
63	-	-	-	-	-	-	-	-	-	0	-	0
64	-	-	-	-	-	-	-	-	-	0	-	0
65	-	-	-	-	-	-	-	-	-	0	-	0
66	-	-	-	-	-	-	-	-	-	1	-	1
67	-	-	-	-	-	-	-	-	-	-	-	-
68	-	-	-	-	-	-	-	-	-	-	-	-
69	-	-	-	-	-	-	-	-	-	-	-	-
70	-	-	-	-	-	-	-	-	-	-	-	-
71	-	-	-	-	-	-	-	-	-	-	-	-
72	-	-	-	-	-	-	-	-	-	-	-	-
73	-	-	-	-	-	-	-	-	-	-	-	-
Total	0	1	1	0	1	1	5	20	25	6	7	13

Appendix table 15 (cont'd)

Set no. Total length (cm)	23			26			28			33		
	M	F	T	M	F	T	M	F	T	M	F	T
16	-	-	-	-	-	-	-	-	-	-	-	-
17	-	-	-	-	-	-	-	-	-	-	-	-
18	-	-	-	-	-	-	-	-	-	-	-	-
19	-	1	1	-	-	-	-	-	-	-	-	-
20	-	0	0	-	-	-	-	-	-	-	-	-
21	1	1	2	-	-	-	-	-	-	-	-	-
22	0	0	0	-	-	-	-	-	-	-	-	2
23	3	2	5	-	-	-	-	-	-	-	-	1
24	0	2	2	-	-	-	-	-	-	-	-	0
25	2	2	4	-	-	-	-	-	-	-	-	2
26	3	3	6	-	-	-	-	-	-	-	-	1
27	3	3	6	-	-	-	-	1	1	-	-	1
28	4	2	6	-	-	-	-	0	0	-	-	1
29	1	1	2	-	-	-	-	0	0	-	-	-
30	0	2	2	-	-	-	-	0	0	-	-	-
31	0	0	0	-	-	-	-	0	0	-	-	-
32	1	0	1	-	-	-	-	0	0	-	-	-
33	0	0	0	-	-	-	-	0	0	-	-	-
34	0	0	0	-	-	-	-	0	0	-	-	-
35	0	0	0	-	-	-	-	0	0	-	-	-
36	0	1	1	-	-	-	-	0	0	-	-	-
37	0	0	0	-	-	-	-	0	0	-	-	-
38	1	0	1	-	-	-	-	0	0	-	-	-
39	0	0	0	-	-	-	-	0	0	-	-	-
40	0	0	0	-	-	-	-	0	0	-	-	-
41	0	0	0	-	-	-	-	0	0	-	-	-
42	0	0	0	-	-	-	-	0	0	-	-	-
43	0	0	0	-	-	-	-	0	0	-	-	-
44	3	0	3	-	-	-	-	0	0	-	-	-
45	-	1	1	-	-	-	-	0	0	-	-	-
46	-	0	0	-	-	-	-	0	0	-	-	-
47	-	0	0	-	1	1	-	0	0	-	-	-
48	-	0	0	-	0	0	-	0	0	-	-	-
49	-	0	0	-	0	0	-	0	0	-	-	-
50	-	3	3	-	0	0	-	0	0	-	-	-
51	-	0	0	-	0	0	-	0	0	-	-	-
52	-	0	0	-	0	0	-	0	0	-	-	-
53	-	0	0	-	0	0	-	0	0	-	-	-
54	-	0	0	-	0	0	-	0	0	-	-	-
55	-	0	0	-	0	0	-	0	0	-	-	-
56	-	1	1	-	0	0	-	0	0	-	-	-
57	-	0	0	-	0	0	-	0	0	-	-	-
58	-	0	0	-	0	0	-	0	0	-	-	-

Appendix table 15 (cont'd)

Set no. Total length (cm)	23			26			28			33		
	M	F	T	M	F	T	M	F	T	M	F	T
59	-	1	1	-	0	0	-	0	0	-	-	-
60	-	0	0	-	0	0	-	0	0	-	-	-
61	-	0	0	-	0	0	-	0	0	-	-	-
62	-	0	0	-	0	0	-	0	0	-	-	-
63	-	0	0	-	0	0	-	0	0	-	-	-
64	-	0	0	-	0	0	-	0	0	-	-	-
65	-	0	0	-	1	1	-	0	0	-	-	-
66	-	0	0	-	-	-	-	1	1	-	-	-
67	-	0	0	-	-	-	-	0	0	-	-	-
68	-	0	0	-	-	-	-	0	0	-	-	-
69	-	1	1	-	-	-	-	1	1	-	-	-
70	-	-	-	-	-	-	-	0	0	-	-	-
71	-	-	-	-	-	-	-	0	0	-	-	-
72	-	-	-	-	-	-	-	1	1	-	-	-
73	-	-	-	-	-	-	-	1	1	-	-	-
Total	22	27	49	0	2	2	0	5	5	0	0	8

Appendix table 15 (cont'd)

Set no. Total length (cm)	34			35			Total		
	M	F	T	M	F	T	M	F	T
16	-	-	2	-	-	-	-	-	2
17	-	-	1	-	-	-	-	-	1
18	-	-	1	-	-	-	-	-	1
19	-	-	0	-	-	-	-	1	1
20	-	-	1	-	-	-	-	0	1
21	-	-	1	-	-	-	1	3	5
22	-	-	4	-	-	2	0	3	11
23	-	-	4	-	-	0	4	3	12
24	-	-	6	-	-	0	1	2	9
25	-	-	3	-	-	3	3	7	18
26	-	-	3	-	-	1	4	8	17
27	-	-	8	-	-	1	4	4	18
28	-	-	3	-	-	1	4	3	12
29	-	-	1	-	-	2	2	1	6
30	-	-	2	-	-	0	0	3	5
31	-	-	0	-	-	0	0	0	0
32	-	-	1	-	-	0	1	2	4
33	-	-	3	-	-	0	0	0	3
34	-	-	0	-	-	0	0	0	0
35	-	-	0	-	-	0	0	0	0
36	-	-	0	-	-	0	0	1	1
37	-	-	0	-	-	0	0	0	0
38	-	-	0	-	-	0	1	0	1
39	-	-	0	-	-	0	0	0	0
40	-	-	0	-	-	0	0	0	0
41	-	-	0	-	-	0	0	1	1
42	-	-	0	-	-	0	0	1	1
43	-	-	0	-	-	0	0	0	0
44	-	-	2	-	-	0	3	0	5
45	-	-	-	-	-	0	0	1	1
46	-	-	-	-	-	1	1	3	5
47	-	-	-	-	-	-	1	1	2
48	-	-	-	-	-	-	0	0	0
49	-	-	-	-	-	-	0	0	0
50	-	-	-	-	-	-	0	3	3
51	-	-	-	-	-	-	0	0	0
52	-	-	-	-	-	-	0	0	0
53	-	-	-	-	-	-	0	2	2
54	-	-	-	-	-	-	0	1	1
55	-	-	-	-	-	-	0	0	0
56	-	-	-	-	-	-	0	1	1
57	-	-	-	-	-	-	1	0	1
58	-	-	-	-	-	-	0	0	0

Appendix table 15 (cont'd)

Set no. Total length (cm)	34			35			Total		
	M	F	T	M	F	T	M	F	T
59	-	-	-	-	-	-	0	1	1
60	-	-	-	-	-	-	0	0	0
61	-	-	-	-	-	-	0	1	1
62	-	-	-	-	-	-	1	0	1
63	-	-	-	-	-	-	0	0	0
64	-	-	-	-	-	-	0	0	0
65	-	-	-	-	-	-	0	1	1
66	-	-	-	-	-	-	1	1	2
67	-	-	-	-	-	-	-	0	0
68	-	-	-	-	-	-	-	0	0
69	-	-	-	-	-	-	-	2	2
70	-	-	-	-	-	-	-	0	0
71	-	-	-	-	-	-	-	0	0
72	-	-	-	-	-	-	-	1	1
73	-	-	-	-	-	-	-	1	1
Total	0	0	46	0	0	11	33	63	161

Appendix table 16. Pacific tomcod length frequency. G.B. REED, February 7-28, 1983.

Set no. Fork length (cm)	20			33			34			35		
	M	F	T	M	F	T	M	F	T	M	F	T
9	-	-	-	-	-	1	-	-	-	-	-	-
10	-	-	-	-	-	2	-	-	-	-	-	-
11	-	-	-	-	-	3	-	-	6	-	-	2
12	-	-	-	-	-	7	-	-	12	-	-	12
13	-	-	-	-	-	7	-	-	14	-	-	19
14	-	-	-	-	-	4	-	-	18	-	-	28
15	-	-	-	-	-	6	-	-	19	-	-	23
16	-	-	-	-	-	2	-	-	16	-	-	9
17	-	-	-	-	-	1	-	-	14	-	-	13
18	-	-	-	-	-	-	-	-	8	-	-	4
19	-	-	-	-	-	-	-	-	1	-	-	2
20	1	-	1	-	-	-	-	-	1	-	-	0
21	1	-	1	-	-	-	-	-	1	-	-	2
22	3	5	8	-	-	-	-	-	3	-	-	3
23	1	0	1	-	-	-	-	-	1	-	-	3
24	4	0	4	-	-	-	-	-	1	-	-	0
25	1	1	2	-	-	-	-	-	2	-	-	2
26	-	-	-	-	-	-	-	-	1	-	-	1
27	-	-	-	-	-	-	-	-	0	-	-	-
28	-	-	-	-	-	-	-	-	0	-	-	-
29	-	-	-	-	-	-	-	-	0	-	-	-
30	-	-	-	-	-	-	-	-	1	-	-	-
31	-	-	-	-	-	-	-	-	1	-	-	-
32	-	-	-	-	-	-	-	-	1	-	-	-
Total	11	6	17	0	0	33	0	0	121	0	0	123

Appendix table 16 (cont'd)

Set no. Fork length (cm)	Total		
	M	F	T
9	-	-	1
10	-	-	2
11	-	-	11
12	-	-	31
13	-	-	40
14	-	-	50
15	-	-	48
16	-	-	27
17	-	-	28
18	-	-	12
19	-	-	3
20	1	-	2
21	1	-	4
22	3	5	14
23	1	0	5
24	4	0	5
25	1	1	6
26	-	-	2
27	-	-	0
28	-	-	0
29	-	-	0
30	-	-	1
31	-	-	1
32	-	-	1
Total	11	6	294